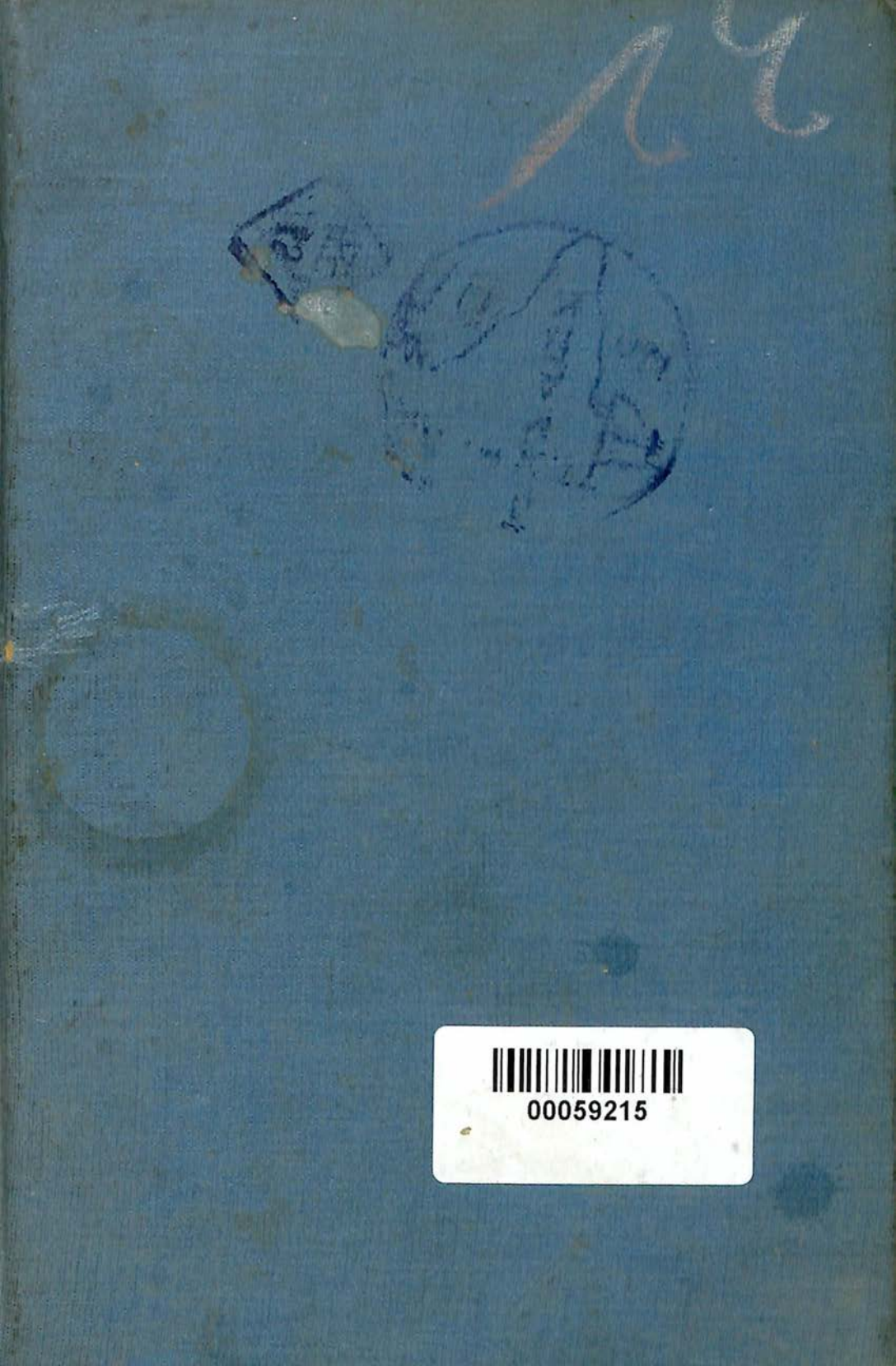
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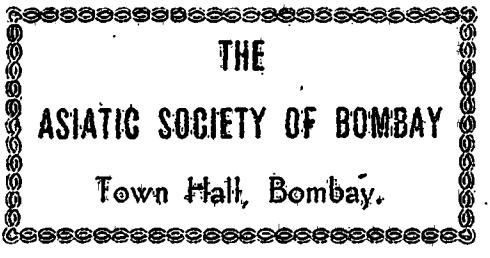

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ORIGINES KALENDARIÆ ITALICÆ,

NUNDINAL CALENDARS OF ANCIENT ITALY,

NUNDINAL CALENDAR OF ROMULUS,

CALENDAR OF NUMA POMPILIUS,

CALENDAR OF THE DECEMVIRS,

IRREGULAR ROMAN CALENDAR,

AND

JULIAN CORRECTION.

TABLES OF THE ROMAN CALENDAR,

FROM

U. C. 4 OF VARRO B. C. 750 TO U. C. 1108 A. D. 355.

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BY

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APPENDIX.

TABLES

OF

THE ROMAN CALENDAR,

AND

EXPLANATIONS.

TABLES

OF

THE ROMAN CALENDAR.

EXPLANATIONS.

SECTION I.—*On the different forms of the Civil year at different times at Rome.*

THE Civil year under all circumstances and all denominations is still only a certain number of days and nights, (noctidiurnal cycles, integral periods of 24 hours of mean solar time, or of apparent solar time,) varying indeed in particular instances as the year is solar or lunar, or one kind of solar or lunar year in contradistinction to another; but in any one and the same instance of such a year, whether solar or lunar, so long as it is regularly administered and in conformity to its own laws, the *same* number of days and nights, the *same* complex of noctidiurnal cycles, perpetually. The ancient Romans had always their proper civil year of this kind in general, though not always of the same kind in particular. It is the object of the following Tables to embody and to represent every modification of the civil year which took place at Rome, from the Foundation B. C. 750 to A. D. 356 at least; i. e. to exhibit each of those years in its proper order of succession, to assign the length of each (the number of days and nights of which it actually consisted), and to designate and distinguish the first day of each perpetually both in its proper Roman style and in its proper Julian, from B. C. 750 to A. D. 356 at least.

These various forms of the Civil year, according to the order in which they came into actual use at Rome, were the following: i. The Nundinal year or Calendar of Romulus. ii. The Lunar or Octaëteric Calendar of Numa Pompilius. iii. The Decemviral Correction of the Calendar of Numa. iv. The Irregular form of the Decemviral Correction. v. The Julian Correction, or proper Roman and Julian Calendar. Each of these enters the Tables as soon as it came into actual use; and each of them continues in the Tables, (between the extreme dates in question at least,) as long as it continued to be in actual use.

The Nundinal Calendar of Romulus enters the Tables on the first day of the Nundinal Martius at midnight U. C. 4 of Varro U. C. 1 of Polybius, February 4 at midnight B. C. 750; and it continues to be exhibited in the Tables down to the epoch of the Calendar of Numa Pompilius.

ii. The Lunar Calendar of Numa Pompilius enters the Tables on the Kalendæ Januariæ at midnight U. C. 42 of Varro U. C. 39 of Polybius, February 17 at midnight B. C. 712; and it continues in possession of the Tables down to the ingress of the Decemviral Correction.

iii. The Decemviral Correction of the Lunar Calendar of Numa Pompilius enters the Tables on the Kalendæ Januariæ at midnight U. C. 306 of Varro U. C. 303 of Polybius, December 29 at midnight B. C. 449; and it continues in possession of the Tables down to the proper date of the Irregular Calendar.

iv. The Irregular form of the Decemviral Correction (the Kalendarium Vagum Romanum) enters the Tables on the Kalendæ Januariæ at midnight U. C. 546 of Varro U. C. 543 of Polybius, December 29 at midnight B. C. 209; and it continues to be represented in the Tables down to the epoch of the Julian Correction.

v. The Julian Correction or proper Roman and Julian year enters the Tables on the Kalendæ Januariæ at midnight U. C. 709 of Varro U. C. 706 of Polybius, December 30 at midnight B. C. 46; and it continues to be exhibited in the Tables down to the Kalendæ Januariæ at midnight U. C. 1109 of Varro U. C. 1106 of Polybius, January 1 at midnight A. D. 356.

SECTION II.—*On the characteristic distinctions of each of these forms of the civil Roman year respectively; and on the mode of representing and arranging each in the Tables.*

The first and oldest form of the civil year among the Romans was the Nundinal; coæval with the founder of the city himself, and with the Foundation. This Nundinal year and the Nundinal Calendar are convertible terms; and either is so called because it was a complete measure of the ORBIS NUNDINALIS of Italian and Roman antiquity: a Noctidiurnal cycle of *eight* days and nights, *eight* periods of 24 hours of mean or apparent solar time, perpetually. The analogy of such a cycle to the Hebdomadal (a cycle of *seven* days and nights, *seven* periods of 24 hours, perpetually) is self-evident; and it is not the least interesting of the discoveries, which the investigation of the history of this classical Noctidiurnal cycle in Italy its birthplace brings to light, that even *this* was borrowed from the Hebdomadal, was grafted at first on the Hebdomadal, and substituted for it ever after.

This Nundinal Calendar of ancient Italy, traced up to its origin in that country, is found to go much further back than the date of the Foundation of Rome; and FIVE TYPES or Specific Varieties of that form of the Calendar in general, (each of them similarly derived from the Primitive Equable Calendar, each of them similarly constituted, each of them embodying the same NUNDINAL CYCLE, each of them authenticated by characters and criteria of its own, each of them older than the Foundation of Rome, and each of them peculiar to and characteristic of some *one* of the principal national distinctions and divisions of communities older in Italy than the ancient Romans,) are successively recoverable by proper inquiry and research. The Nundinal Calendar of Romulus was directly derived from the *fifth* of these. In the year of the Foundation of Rome the first day of the former and the first of the latter were the same; and as long as both went on in conjunction there was no difference between them but what was purely accidental.

Now this Nundinal year, in every Calendar into which it entered, and under every name, contained the same number of days, the same number of months, the same number of

Orbes Nundinales; 304 days, 10 months, 38 cycles of the Orbis Nundinalis. The Nundinal year of Romulus was no exception to the rest in any of these respects. It differed from the older Nundinal year only in the lengths and in the names of its months; more especially in their lengths. The old and original Nundinal month was a cycle of 32 days; *four* cycles of the Orbis Nundinalis complete: and it seems to have been the rule of the Nundinal Calendar in each of its Types older than the Correction of Romulus to have *nine* months of 32 days, and a *tenth* month of 16 days. In the Nundinal Correction of Romulus the months were 31 days and 29 days long alternately from the first to the sixth; and 32 days and 30 days long alternately from the seventh to the tenth.

The first month in the Nundinal year of Romulus was the month of Martius; and the first day of his year was the first of his Martius. This first day of the Nundinal year of Romulus is exhibited in the Tables, under its proper Roman style, the first of Martius, and under its proper Julian one, the Julian date corresponding to the Roman for the time being, *year* by *year*, as long as there was such a day in the actual Roman calendar; i. e. from February 4 B.C. 750, the first of his Martius in his first Nundinal year, to July 20 B.C. 713, the first of his Martius in the 46th.

One year of 304 days and nights contains 61 days less than one year of 365 days and nights; and 62 days less than one year of 366 days and nights. It is manifest therefore that the Julian epoch of this Nundinal Martius in every subsequent Nundinal year must recede on its Julian epoch the year before at the rate of 61 days in every common year of the Julian cycle of leap-year, and at the rate of 62 days in every leap-year; and such, it will be seen, is the rate at which the Julian dates of the first of Martius exhibited in the Tables year by year descend one upon another perpetually.

Yet *six* years of 304 days each contain 1824 days and nights; and *five* Julian years, in which there is only *one* leap-year, can contain only 1826; *five*, in which there are *two* leap-years, can contain only 1827. It follows that *six* Nundinal years must be equal to *five* Julian years, within

two days or at the utmost *three*. Consequently that in *six* Nundinal years and *five* Julian years the Nundinal Martius must return to the same day of the same Julian month, within *two* days or at the utmost *three*. The proper PERIOD therefore of the Nundinal year in terms of the Julian perpetually is this *Cycle* of six Nundinal years and five Julian. The student will observe that the Nundinal Calendar of Romulus is digested in the Tables in Periods or Cycles of this kind accordingly; i. e. in seven complete Periods of this kind and four years of an eighth = 46 Nundinal years, 37 Julian years, in all.

ii. The Octaëteris of antiquity as a certain complex of Annual cycles was a Period of eight years; and as a certain complex of Noctidiurnal cycles was a Period of 2922 days: as a complex of solar and lunar cycles of both kinds in conjunction it was a lunæsolar Period of eight lunar and eight solar (in the sense of eight Julian) years, 2922 days and nights both in lunar and in solar time, perpetually. Three cycles of the Octaëteris in sequence consequently would be a lunar and solar Period of 24 lunar and 24 solar or Julian years in conjunction, 8766 days and nights in lunar and in solar time alike. The Cycle of the Calendar of Numa Pompilius was a Period of 24 lunar and 24 solar years in conjunction, 8766 days and nights also. It is manifest therefore that it was a lunar and solar Cycle altogether the same in principle as the simple Octaëteris; and ultimately based upon it. It is evident also that this number of days and nights which made up the complex of Noctidiurnal cycles in this lunæsolar Period of Numa, 8766, was exactly the same as the number which would be contained in 24 Julian years, 18 of which should be years of 365 days each, and 6 should be years of 366 days each; i. e. the number contained in six cycles of the Julian leap-year. It follows that the same days in their proper Roman style must return to the same in their proper Julian style at corresponding points of time in each of these Periods of Numa perpetually; and that the scheme of such days in their proper Roman and their proper Julian style drawn out and delineated year by year for one of these Periods of 24 years in the Calendar of Numa is perpetual: and that it may be carried either forwards or backwards to any

extent, and will still shew the same Roman under the same Julian dates at corresponding points of time with the same truth and exactness.

The proper style of the first day in every year in this 24 years' Period or Εἰκοσιτετραετηρὶς of Numa was the KALENDÆ JANUARIÆ. This first day is shewn in the Tables, under both its proper Roman style and its proper Julian corresponding to the Roman, first in each of the 24 years of the first Period or Cycle of this kind; and then in each of the 24 years of the second: and so on; as long as the Calendar of Numa continued to be in actual use at Rome: i. e. from the Kalendæ Januariæ U. C. 42 of Varro February 17 B. C. 712, the first year of the first Cycle of this kind, to the Kalendæ Januariæ U. C. 305 of Varro February 6 B. C. 449. Consequently it continues in possession of the Tables for ELEVEN of its proper cycles, 264 years.

iii. The Decemviral Correction of the Calendar of Numa in every thing but the seat of the month Februarius in every year of the Cycle, and in that of the month Merkedonius in the intercalary years of the Cycle, and in the alternation of the common and of the intercalary years of the Cycle respectively, agreed entirely with the Calendar of Numa. The proper Cycle of this Correction too was a Period of three cycles of the Octaëteris, six cycles of the Julian leap-year, 24 lunar and 24 solar (in the sense of Julian) years, 8766 days perpetually. The first day of every year in this too, in its proper Roman style, was the Kalendæ Januariæ. It follows that the scheme of the Cycle of these Kalendæ; under their proper Julian dates, for one of these Periods of the Decemviral Correction, is competent to serve the same purpose for any number of them, either forwards or backwards perpetually. It is digested and proposed in the Tables accordingly. The Decemviral Correction succeeds to the Calendar of Numa on the *first* day of the *first* year of the *first* of its proper Periods of 24 years, the Kalendæ Januariæ at midnight U. C. 306 of Varro, December 29 at midnight B. C. 449; and it continues in possession of the Tables down to the *first* day of the *first* year of the *eleventh* of those Periods, the Kalendæ Januariæ at midnight U. C. 546 of Varro, December 29 at midnight B. C. 209: i. e. 240 years in all.

iv. The Irregular form of the Decemviral Correction (Kalendarium Vagum Romanum) discarded the rule of administration previously in use; but it made no change in the names or in the order of the months: nor in the lengths of any but two, and of those only under particular circumstances. The first day of the year in this form of the civil Roman Calendar in its proper Roman style was consequently still the Kalendæ Januariæ. Yet in the nature of things there could be no regular Cycle of the Irregular Calendar; nor could the Kalends of January in particular years of the Irregular administration of the Calendar, under their proper Julian dates in such years, recur in subsequent years, under the same Julian dates, except *per accidens*. In this form of the civil Roman Calendar therefore each year requires to be treated as simply *one* of a *series*; as having an order and place and characters of its own in a general succession of years like itself before and after, but not deducible from the laws and relations of a cycle, and its constituent parts. We propose accordingly the first day of every year of this description also, under its proper Roman and its proper Julian denomination, the same as before; but year by year, not Cycle by Cycle any longer. Yet as even the Irregular administration took its rise in the very first year of the eleventh Εἰκοσιτετραετηρὶς of the Decemviral Correction; this too admits of being distributed into Periods of 24 years as much as that. The Irregular Calendar therefore or Kalendarium Vagum enters the Tables on the *first* day of the *first* year of the *first* of these Periods, the Kalendæ Januariæ at midnight U. C. 546 of Varro, December 29 at midnight B. C. 209; and it continues in possession of the Tables for *six* of these Periods, and for nineteen years of a *seventh*: i. e. down to the Kalendæ Januariæ at midnight U. C. 709 of Varro, December 30 at midnight B. C. 46, 163 years in all.

v. With regard to the Julian Correction; the first year of this Correction being known, and the first day of this year being known (the Kalendæ Januariæ at midnight U. C. 709 of Varro, Dec. 30 at midnight B. C. 46), and the laws and rules of the Julian Calendar properly so called being well known; it might have been supposed *a priori* that all which

we could have to do in this part of the Tables would be to exhibit the first day of every year of the Correction in order, under one and the same Roman denomination the Kalendæ Januariæ, and under one and the same Julian equivalent to it December 30, perpetually: for it is manifest that, in such a Calendar as the Julian, regularly administered in conformity to its own rules, if the proper Roman style of the first day of the first year was the Kalendæ Januariæ, it would be the Kalendæ Januariæ perpetually; and, if the proper Julian style corresponding to the Roman in the first year was December 30, it would be December 30 perpetually. But the truth is that the Julian Correction, at Rome itself, for 269 years was not regularly administered in conformity to the laws and rules of such a Calendar as the Julian; and in particular with respect to the proper cycle of the Julian leap-year. In the actual administration therefore of this Correction at Rome the Kalendæ Januariæ, though nominally always the same with themselves, did not continue attached to the same Julian term to which they had been fixed by the Correction; but sometimes advanced upon it, sometimes fell back upon it. The Romans had consequently all this time *a* Julian year of a certain kind, but not *the* Julian year properly so called. Our business therefore in *this* part of the Tables is still the same as in *that* which immediately precedes it; viz. to deal with each year, even in the Julian Correction, for the first 269 years, as an isolated and independent one of its kind: and as sometimes 365 days long sometimes 366, according to the circumstances of each, whether agreeable to the proper Julian cycle of that description or not. The Julian Correction therefore, or proper Roman and Julian year, as exhibited in the Tables, divides itself into two great Periods; the first, one during which it was not yet regularly administered according to the proper Julian rule, the second, one during which it was. The former extends from the first Julian year, U. C. 709 of Varro B. C. 45, to the 270th, U. C. 978 of Varro A. D. 225; the latter from the 270th, U. C. 978 of Varro A. D. 225, to the 401st, U. C. 1109 of Varro A. D. 356. And in each of these Periods the Tables exhibit the first day of the year under its proper Roman style the Kalendæ Januariæ and under its

corresponding Julian date; but for the first of them under a variable date of that kind determined by circumstances (i. e. by the actual administration of the Correction *up to* that time and *at* that time, whether agreeable to the proper Julian rule or not), for the second under a fixed and invariable one, determined by the law of such a Calendar as the Julian perpetually, (January 1.)

SECTION III.—*On the years of the City, the years of the Kings, and the years of the Consuls; incorporated in the Tables.*

i. With respect to the years of the City or Urbis Conditæ embodied in these Tables, an Æra of that kind is exhibited perpetually in three principal styles, the Varronian, the Capitoline, and the Polybian. Each of these too, as proposed therein, is assumed to bear date from the traditionary or historical day of the Foundation, the feast-day of Pales or Palilia from the first, the Natalis Urbis of after-times, and among the Romans themselves, in terms of their proper Calendar from the time of Numa downwards, ex ante diem (a. d.) xi Kalendas Maias, April 20 Roman before the date of the Julian Correction, April 21 Roman after it: the Varronian consequently from the Palilia (called also Parilia) B. C. 753, the Capitoline from the Palilia B. C. 752, the Polybian from the Palilia B. C. 750. And as thus exhibited in the Tables conjointly and as thus referred to the Vulgar Æra in common the Capitoline is seen to range continually *one* year lower than the Varronian, and the Polybian *two* years lower than the Capitoline, *three* years lower than the Varronian.

Among these different styles of the Æra Urbana the Varronian may be regarded as the Vulgar Æra of that kind; but the Polybian is the true: for Rome was actually founded at the Palilia U. C. 1 of the Polybian Æra, April 24 B. C. 750. The Varronian is too well known, and has been too long in exclusive possession of all Tables of the Fasti Romani, to be ousted from them at present without great confusion and great inconvenience. We have retained it therefore in our Tables also, as the positive or conventional standard of the Æra Urbana, on which all the learned are agreed, and which all alike receive and understand; subject however to the correction and rectification which it may at any time experience

from the true standard and measure of the years of the City perpetually, the Æra of Polybius. It is not often necessary to take the exact age of the City into account; and only on such questions as that of the actual day of the Foundation and its proper characters, (which of course could hold good of it only in its proper year,) or that of the absolute interval of time between the Foundation and the Regifuge, and the consequent lengths of the reigns of the Kings respectively.

And to these different styles of the Æra Urbana proposed in the Tables perpetually it would have been very desirable, in our opinion, that we should have added *two* more, as the next in authenticity and in authority to that of Polybius, could it have been done without complicating the Tables too much; the Catonian, Ex Palilibus B. C. 751, and that of the Annales Maximi, Ex Palilibus B. C. 749: the former just one year higher, the latter just one year lower, than the Polybian. The Catonian Æra is adopted by Livy and by Dionysius of Halicarnassus; and therefore is the most necessary of all for the study of Roman history in either of those authors. The Æra of the Annales Maximi in point of antiquity was almost cœval with the Foundation; it was at least as old as the institution of the Pontifical College in the reign of Numa: and there is good reason to believe that, if the Romans kept a public account of the years of their own City from the first, it was in terms of this Æra; that the secular years of the City for three centuries at least after the Foundation were reckoned by it: and that the difference of one year between the style of this Æra and that of the Æra of Polybius is purely accidental, and capable of being explained without prejudice to the truth of either.

ii. With regard to the years of the Kings which accompany the years of the City; the true year of the Foundation having been B. C. 750, and the true year of the expulsion of the last of the Kings having been B. C. 508; the absolute interval from one of those extreme dates to the other must have been 242 years. Such then must have been the absolute duration of the Monarchy at Rome; and such the entire number of years which were taken up from first to last by the reigns of the *seven* Kings. As to the *first* or the *last* year of each of

these in its order; it may be assumed for certain that the first year of Romulus must have been B. C. 750 and the last B. C. 715. It may be considered morally certain that the first year of Numa Pompilius was the year which preceded the date of his Correction of the Calendar; viz. B. C. 713. There is good reason also to conclude that the first year of Ancus Martius (and therefore the last year of Tullus Hostilius) was B. C. 638. In like manner the first year of Tarquinius Superbus (and therefore the last year of Servius Tullius) may be assumed as B. C. 533; and the *last* year of Tarquinius Superbus (because the *first* of the Consular Æra strictly so called) still more certainly as B. C. 508. And this is the utmost which we can venture to affirm of the chronology of the Monarchy. The initial years of the reigns in the remaining instances, exhibited in the Tables, may be the true; or may be *one* year in excess, or *one* year in defect, of the true.

iii. With regard to the Consular Æra of the Tables, or the series and succession of Consular years connumerary with those of the City contained therein; the proper epoch of this entire succession is of course the year of the expulsion of the Kings, and of the creation of the first pair of Consuls: for it is agreed that these two things fell out so simultaneously that the expulsion took place on one day and the first pair of Consuls was created on the next. The actual day of the expulsion in terms of the Calendar of the time being (that of Numa) traditionally handed down was the Kalends of June; and the actual year in terms of the Æra Vulgaris was B. C. 508. The true year consequently in the Æra of the City was U. C. 546 of Varro U. C. 543 of Polybius; and the true day in the Roman style was the Kalends of June Cycle ix. 13 of Numa U. C. 546 of Varro, in the Julian June 29 B. C. 508. Consequently the true date of the creation of the first pair of Consuls in the Roman style was a. d. iv Nonas Junias U. C. 546 of Varro, and in the Julian June 30 B. C. 508.

It follows that the Varronian epoch of the Consular Æra in the Æra Urbana of Varro, (the first year of the entire course and succession of years, reckoned by Consuls, in the Fasti adapted to the Varronian epoch of the Foundation,)

U. C. 245 B. C. 509, is one year in anticipation of the truth; and the *second* year in this succession according to Varro is in reality the *first*. The meaning of this statement is that the Consuls who represent U. C. 245 B. C. 509 in the Consular Fasti according to Varro did in reality represent U. C. 246 B. C. 508. And though this anticipation of the epoch of the Consular Æra in the Fasti of Varro is just as unquestionable as that of the epoch of the Æra of the City in the same; we have not thought it advisable to correct *this* in our Tables any more than *that:* but as we retain the *order* and *names* of the Consuls according to Varro so we retain the *years* represented by them according to Varro also.

It is sufficient to know that for a certain length of time after the epoch the Consular Fasti, according to Varro, (i. e. in the ordinary arrangement of the Tables,) stand in need of a correction, if not in the names or order of the Consuls annually exhibited in them, yet in the years supposed to be represented by them; and what is the amount of that correction as long as it is required, and what is the mode of administering it, and whereabouts in the succession it should come in[a]. We say however *for a certain length of time;* because from U. C. 420 of Varro B. C. 324 (the 185th year of the true Consular Æra) downwards there is no difference, so far as we know, between the succession of Consuls and Consular years both in the Æra Urbana and in the Æra Vulgaris, according to Varro, and the truth.

As to the *epoch* of these Consular years, or the proper mode of reckoning them perpetually; it is generally assumed that in the Fasti of Varro both the Consular years and the years of the City are reckoned from the same *positive* epoch, the Kalends of January. In the Fasti Capitolini the Consular years and the years of the City are both reckoned from the Palilia. Such at least is the epoch from which they are reckoned in the Fasti Triumphales Capitolini; and therefore we may presume in the Fasti Consulares also: an epoch the most natural and proper imaginable for the years of the City, but purely arbitrary and conventional for those of the Consuls; insomuch as the actual Consular year at Rome is not

[a] See Dissertation viii. Vol. ii. 133—177.

known, at any time or under any circumstances, to have borne date at the Palilia.

But with respect to the Consular Æra of our Tables; it is assumed that every Consular year noted therein bears date from the Consular Ingress, i. e. the *first* day of the official year; and it is also assumed, because there is competent proof of the fact, that, subject only to such accidental and temporary variations as all general rules are liable to, the Consular Ingress had a stated date: at first the Kalends of January, the first day of the civil year; next the Ides of December, *seventeen days* before the first day of the civil year: and then the Ides of March, *two months* and *fifteen days* after the first day of the civil year in common years; *three months* and *fifteen days* later in intercalary years: and lastly the Kalends of January, the first day of the civil year again, as at first.

It is assumed then in these Tables that from U. C. 245 of Varro B. C. 509 to U. C. 306 B. C. 448 every consular year exhibited in them (except in those few cases in which it is known from testimony that the fact was otherwise) bears date on the Kalends of January; and from U. C. 306 B. C. 448 to U. C. 474 B. C. 280 (except in the same cases) bears date on the Ides of December: and from U. C. 474 B. C. 280 to U. C. 601 B. C. 153 (subject to the same restriction) bears date on the Ides of March; and from U. C. 601 B. C. 153 to the end of the Tables bears date on the Kalends of January[b].

SECTION IV.—*On the Order and Names of the Consuls in the Fasti Consulares of the Tables.*

With respect to the order and names (or personal description and designation) of each of the Consuls, exhibited in these Fasti; the only point about which we have been solicitous, as something of material importance, is *this:* viz. That every year in the Æra of the City from the date of the Regifuge and of the institution of the Consular government downwards should be represented in our Tables by its proper official or presiding magistrates, whether Consuls or others; so that the names of these magistrates for the time being

[b] See Dissertation ix. Vol. ii. 178—246.

known the student might be directed thereby to the proper year of the City and to the proper year of the Æra Vulgaris represented by them in each instance. The years of the City and the corresponding years of the Æra Vulgaris require to be known, in order to make any use of the Calendar for those years; and generally speaking they can be known at a given time only from the names of the Consuls who represent them. And though it must always have been a certain and unquestionable assumption *a priori* that every year of the City, from the institution of the Consular government down to the time when Rome ceased to have Consuls at all, must have been represented by some names or other, which in the general and perpetual order of the series could have belonged to no year but one; yet had we been laid under the necessity of arranging these names in juxtaposition with the proper years of the City for the *first* time and for the use of these Tables, it would have imposed upon us a very difficult and laborious duty. It is therefore a fortunate circumstance that this part of our task has been already performed, partly by the learned among the Romans in former times who compiled the Fasti Capitolini, and partly by the learned in modern times, many of whom have drawn up similar Tables, (one improving on another in the gradual attainment of perfection,) of which we have nothing to do but gratefully and thankfully to avail ourselves for our proper use and purpose at present.

It must be understood therefore that, with respect to the general succession of Consular names in these Tables, from U. C. 245 of Varro U. C. 244 Cap. B. C. 509 down to U. C. 474 of Varro U. C. 473 Cap. B. C. 280, wheresoever the Fasti Capitolini (including the fragments recovered in A. D. 1816[c]) were still sufficiently perfect and entire we have adopted implicitly the arrangements of those Fasti; and where these Fasti are defective at present we have borrowed those of the Fasti Consulares of Almeloveen[d]: but that from U. C. 474 of Varro B. C. 280 downwards, in which year the Fasti Romani[e] of the late Mr. Clinton begin, we have

[c] Cf. Vol. i. 39.
[d] Editio Altera, Amstelædami, 1740.
[e] Fasti Hellenici. Oxford, at the University Press, 1851. Fasti Romani. Oxford, at the University Press, 1845.

thought it only due to the acknowledged erudition and exactness of the accomplished and indefatigable author of that Work, that we should take the arrangements and details of the Consular Fasti of our own Table implicitly from those of his.

And on this subject we may be allowed to remark that, while there may often be no doubt in a particular instance concerning the Consuls or other magistrates in general by whom such and such a year must have been represented; questions may notwithstanding be raised (curious indeed and possibly interesting in themselves, but not of much importance to history or chronology) affecting their *order* on the list, relatively to each other, which should stand *first* and which *second;* or affecting their *names*, their personal style and designation, the Prænomen, the Nomen, the Cognomen, or the Agnomen, which made part of the entry in such cases; or affecting the mode of spelling and writing them, where the ancient practice appears to have been different from that of later times[f], or one modern authority differs from another. It did not come within the scope of these Tables to enter on questions of so much minuteness as those; and we have thought it better on every account to follow the authorities, of which we profess to make use, in such respects implicitly.

It should be observed however that the Names which are actually exhibited in our Tables every year are those of the *ordinary* magistrates of the year alone; and generally speaking those only of Consuls: and therefore not more than *two* for each year. Yet years made part of the succession which would require several names even of the *ordinary* magistrates; those for example, which were represented by Decemvirs, and those which had Military Tribunes. Still more years there were (especially from the date of the Julian Correction downwards) which had Consuls *suffecti* as well as *ordinarii*. In the former case the limited space of our Tables does not allow us to give more than *two* names or at the utmost *three* (the first two or the first three in such cases);

[f] For instance, whether it should be Cæso or Kæso, Æmilius or Aimilius, Pætus or Paitus, Publicola or Poplicola, Martius or Marcius, Messala or Messalla, Scævola or Scævula, Virginius or Verginius, and the like.

and in the latter, for the same reason, all we can do is to give the names of the ordinary Consuls as usual, and to prefix an asterisk to one or both of them, to shew that they were succeeded some time or other the same year by Consuls *suffecti*: the names of whom and the order of their succession, or the time of the year when they entered, if wanted for any historical or chronological purpose, must be obtained from the longer and more circumstantial Tables of the Fasti.

SECTION V.—*On the Tables of Kalends* in mensibus expansis *of the Civil Roman year of the Fasti.*

The numerical order and place then of every year, which actually entered the Roman Calendar, both in the Æra of the City and in the Æra Vulgaris perpetually down to the end of the Tables being known; the length too of each year being known (i. e. the number of days and nights of which it consisted in its proper order of succession being known); the style of the first of this number under both its proper Roman date and its proper Julian date being also known; the number and order and lengths of the months in every form of the civil Roman year, (whether the Nundinal of Romulus, or the Lunar and Solar of Numa Pompilius and of the Decemvirs and of the Irregular Calendar, or the Julian properly so called,) being likewise known: a very simple and easy calculation would enable the student to get the proper Roman and Julian date of the *first* day, or of *any other* day, in *any other* month of a given year from the proper Roman and Julian date of the *first* day of the *first* month in the same year, supplied by Table i perpetually. But in order to save him the trouble even of so simple an operation as that and to enable him to see at one glance the proper Roman and Julian date of the *first* day of *every* month in every year which could enter the Roman Calendar in any of its *forms* (the Nundinal of Romulus only excepted); we have compiled Tables ii—v; as supplementary to Table i: Tables ii and iii, to enable him to see this in any year of the Εἰκοσιτετραετηρὶς of Numa, and in any of that of the Decemvirs, respectively; Table iv (divided into seven parts), to enable him to see it in every year of each of the seven Periods of 24 years into which we have distributed the administration of the Irregular Calendar: and

Table v, to assist him to do the same thing, as far as was possible, in every year of the Roman and Julian Correction, whether the same with or different from the Julian year of the time being properly so called. These Tables we shall proceed briefly to explain.

i. With regard to the Nundinal year (excepted from the scope of these Tables), it has been explained that the first day of this year in the style of its proper calendar was the first of Martius; and this first day of the Nundinal Martius, so long as there was such a day in the Roman Calendar, is shewn in Table i under its proper Nundinal and its proper Julian style *in annis expansis* perpetually. A supplementary Table such as we have just described, with a specific relation to the Nundinal calendar of Romulus, and intended to shew at one glance the first day of every one of the months in every one of its years, may or may not be a desideratum in the opinion of our readers; but in our own opinion even had such a Table been compiled it could have served no useful purpose. The Nundinal calendar was actually in use at Rome merely for the comparatively short interval of the reign of Romulus and of the Interregnum after his death; and two dates only[g] have been actually handed down in terms of this calendar, of which any use can be made at present. It has been explained that there was no Cycle or Period of the Nundinal year in terms of the Julian, except that of six Nundinal years and five Julian; and that even in this the same Nundinal dates and in the same years of the Cycle did not recur to the same Julian within less than *two* days for every such Cycle, and possibly not within less than *three*. It is manifest then that, in order to shew the first day of every Nundinal month both in its proper Nundinal style and in its proper Julian in every one of the 46 Nundinal years for which the Calendar of Romulus was actually in use, a Table must have been wanted containing 46×10 or 460 Nundinal months. Nothing less could have answered that purpose. Such a Table might have been compiled; but it must have been practically useless at present: and we hope we shall be excused for thinking that it might be dispensed with.

[g] One of them that of the Raptus Virginum, the other that of the eclipse at the death or disappearance of Romulus.

ii. The Εἰκοσιτετραετηρὶς of Numa and that of the Decemviral Correction did not differ from each other in any one essential respect. Both were the same complex or Period of lunar or solar years. And in this Period common to both the number of common years and that of intercalary was the same in each; *thirteen* of the former *eleven* of the latter perpetually. They differed only in the *alternation* of these common and these intercalary years in each. The length of the common year was the same in each, 355 days; and the length of the intercalary years was the same in each: 378 days, when the Merkedonius was one of 23 days, and 377 days, when it was one of 22 days. The number of days was consequently the same in each, 8766 in both alike. The *names* and the *lengths* of the months were the same in each; the *order* only was different: and that difference consisted in *this;* That the month called Februarius alike in each, and 28 days or 23 days long alike in each, (28 in the common, 23 in the intercalary, years alike in each,) was the *twelfth* month in the calendar of Numa, and the *second* in that of the Decemvirs; and the month called Merkedonius in each, and the proper intercalary month in each, and 28 days or 27 days long in each, was the *thirteenth* month in the Calendar of Numa, and the *third* in that of the Decemvirs.

It follows that in every common year of each of these Εἰκοσιτετραετηρίδες there were *twelve* months, the same taken collectively in each; and that in every intercalary year there were *thirteen,* the same on the whole in each: and that in the sum total of years of both kinds in each there must have been $24 \times 12 + 11$, or 299, months. We have drawn out the Type of each of these Εἰκοσιτετραετηρίδες *in mensibus* as well as *in annis expansis;* the former in Table ii, for the Calendar of Numa, the latter in Table iii, for that of the Decemvirs: i. e. we have set down the *first* day of each of those 299 months in its proper Roman and in its proper Julian style, from beginning to end of one of these cycles in each. It will now be understood that one scheme of this kind so delineated for either is competent to serve the same purpose perpetually.

The *Argument* of each of these Tables is the current year of the current Cycle or Period of Numa or of the Decem-

virs, the length of that year in days and nights, the Kalendæ Januariæ and their proper Julian style in the same year, and the Nundinal Character of those Kalends in that year: all which is known from Table i *in annis expansis* perpetually. With this Argument the student must enter Table ii or Table iii as the case requires; and in the *same* year of the Cycle in *that* he will find not only the same Kalends of January under the same Julian date as in Table i, but also the Kalends of every other month in the same year whether common or intercalary, under their proper Julian date also: from the Kalends of Martius to the Kalends of Februarius or the Kalends of the Merkedonius in Table ii, and from the Kalends of Februarius to the Kalends of December in Table iii. The names and lengths of each of the months are marked in the first of the horizontal columns of each of these Tables; i. e. at the head of each of the vertical columns in each: and in the intercalary years the length of Februarius, 23 days, and the length of the Merkedonius, (28 days or 27 days according to the rule of the Cycle at such times,) is prefixed to the name of each. The reason of this distinction is that, though the proper length of Februarius in the common years of each of these Εἰκοσιτεσσαρεσκαιδέκατες was 28 days alike, yet in the intercalary years of the Period in each the Merkedonius was inserted in this month; and the proper day in this month which in such years became the first of the Merkedonius in each was the 24th: i. e. in the Roman style a. d. vi Kalendas Martias, or Postridie Terminalia. In each consequently in the intercalary years the *last* five days of Februarius became the *first* five days of the Merkedonius; and Februarius in such years had 23 days (in all others 28 days), and the Merkedonius had 28 days or 27 days, according as its proper length was 23 days or 22 days.

iii. The Irregular form of the Decemviral Correction admitted of years of the ordinary standard of the common year in that, 355 days, and of years of the ordinary standard of the intercalary year in that also, 378 days or 377 days: but it admitted also of years peculiar to itself, and under no circumstances admissible into the Cycle of the regular Calendar before in use: years of 356 days and years of 354 days, according to circumstances. In the number and names and

order of the months it did not differ from the Decemviral Correction; nor in their lengths; except in the two cases just mentioned. In years of 356 days one month in this form of the Calendar was a day longer than usual; viz. December: which in such years became a month of 30 days instead of one of 29. In years of 354 days one month was a day shorter than usual; viz. Februarius; which in such years became a month of 27 days instead of one of 28.

It follows that, though the Irregular Calendar for the reason already explained admits of being distributed into Periods of 24 years, (the first of which too takes up and continues the last similar Period of the Regular Calendar itself,) yet one of these Irregular Periods of 24 years could not contain either the same number of common, or the same number of intercalary, years, either the same number of months or the same number of days, as one of the Regular, except *per accidens;* nor one of these Irregular Periods the same number as another, except *per accidens* also. We could not therefore propose one Type of the first, or of any other, of these Irregular Periods, *in annis et mensibus expansis*, as of perpetual application. We have no alternative except that of proposing a distinct Type for each; and consequently *seven* Types in all: *six* for the *six* complete Periods of this kind embraced by the entire duration of the Irregular administration, and the seventh for that part of a seventh which was comprehended by it also. The Argument however for each of these parts of Table iv is the same as before; the current year of the current Period of 24 years, the length of that year, the Kalends of January under their proper Julian date, and the Nundinal Character of those Kalends, as before: each of which things being known and assumed from Table i, the first of every other month in the same year under its proper Roman and its proper Julian style will be known from these different Parts of Table iv also. The student should take notice only and bear in mind that in years of 356 days the supplementary day was intercalated at the end of December; and that December in such years had an a. d. xviii Kalendas Januarias: in years of 354 days the odd day was abstracted from Februarius; and Februarius in such years had no a. d. xvi Kalendas Martias

as usual, though it had an a. d. xv as usual. But, to prevent any mistake in the use of this Table in such respects, we have marked the length both of December and of Februarius in these particular instances all through it.

iv. With respect to Table v; it exhibits the Type or scheme of the *first* year of the proper Roman and Julian Correction, *in mensibus expansis*, and in the first year of its proper Cycle of leap-year; which as every chronologer is aware was nothing different from the proper Julian Cycle of leap-year at present: and *that*, upon the hypothesis that according to the first and original constitution of the author of the Correction the Kalends of January in the first year of its proper Cycle of leap-year bore date December 30 B. C. 46. *This* hypothesis being assumed to have been matter of fact, and the administration of the Correction at Rome being assumed to have been ever after agreeable to the proper laws of the Julian Calendar; it is manifest that this Type of the first year of its proper Cycle of leap-year *in mensibus expansis* would be the Type of every other: and in fact perpetual. The Kalends of January once attached to December 30 in the first year of their proper Cycle of leap-year must have continued attached to them in every year; and the first of January in the proper Roman and Julian style ever after never could have denoted any thing but December 30. And so much of this hypothesis indeed, as concerns the assumption that the first Kalends of January in the Julian Æra were left attached to December 30, is matter of fact; but the other part of the hypothesis, viz., that the administration of the Correction at Rome was regular and agreeable to the laws of the Julian Calendar ever after, is not matter of fact. On the contrary nothing is more certain than that for the first 269 years of the Æra it was decidedly irregular; and first became regular (i. e. such as the proper rule of a calendar like the Julian required to be) in the 270th year, A. D. 225. For the preceding part of this Æra the actual state of the case is found to have been that the Kalends of January might denote December 30 as at first, or *any* day between December 30 and January 2, according to circumstances, on one hand, and *any* between December 30 and December 28, according to circumstances also, on the other. So that what

day they actually denoted in their proper Julian style in each of these 269 years respectively cannot be determined without a minute and circumstantial inquiry into the chronological characters of one of them after another; nor without the comparison of the most different kinds of testimony, yet of the most critical nature throughout.

We cannot then propose any Type of the original Julian Correction as of perpetual use and application. But the Type which we *do* propose in this Table v is true for the *first* year of the Correction; and of course for every subsequent year in which the Roman and Julian Kalends for the time being were falling on the same day as at first, December 30. And it may serve in proportion even for those years in which they were not falling on December 30, but on some day between December 30 and January 2, in advance of it, or on some day between December 30 and December 28, in defect of it; viz. by adding to the dates of this Type in proportion to *that* excess in the former case, and by subtracting from them in proportion to *this* defect in the other: the actual Julian date of the first day of every such year of the Æra, regular or irregular in other respects, being known from Table i perpetually.

On this subject too it is necessary to inform the student that, as the essence of the irregularity, thus admitted *de facto* into the administration of the Correction for the first 269 years, consisted in making those years of the Cycle of leap-year common which ought to have been leap-years, and those years leap-years which ought to have been common; in these latter cases more particularly not only was the proper Julian Cycle of the leap-year superseded and changed *pro tempore*, but the proper seat of the leap-day in the Julian Calendar was altered too, from the usual place in Februarius to one in December. For though this is not an absolutely certain point, about which we could undertake to speak with a positive assurance of the effect, yet facts are discoverable which cannot be explained and accounted for except by supposing that, down to a certain point of time in the actual administration of the Julian Correction at Rome (the reign of Claudius or that of Nero), as often as the proper year of the Cycle of leap-year was changed the proper seat of the leap-day was

changed also; and to the best of our judgment from the usual place in Februarius to the end of December.

SECTION VI.—*On the Nundinal Cycle of the Tables.*

The Nundinal Cycle, as one of the different measures of the course of day and night by a fixed and invariable rule, which ever were or still are in use among mankind, next to the Hebdomadal is the most venerable of all in point of antiquity; and as an usage and observance of private and public life, characteristic of any of the nations of antiquity, it is the most remarkable of that kind which could be mentioned, and the most distinctive of the oldest inhabitants of ancient Italy. Among the Romans at least this Cycle was so interwoven with the texture of *their* Calendar, so inseparably connected with the constant reckoning of Noctidiurnal and annual time among *them*, and (what is more) had so much to do with the *administration* of their Calendar itself, (especially that of the Irregular Calendar and even of the Julian Correction,) that no scheme of this Calendar, professing to be the actual one perpetually, could possibly be entitled to that name and truly be what it pretended to be, which did not embody this Cycle from the first, and continue to embody it to the last.

We have made a point therefore of incorporating it in our Tables perpetually; from its first and proper epoch, (as that of the Nundinal Cycle of ancient Rome,) the first Nundinal day in the Calendar of Romulus; from its second, the first Nundinal day in the Calendar of Numa Pompilius; from its third, the first Nundinal day in the Calendar of the Decemvirs; from its fourth, the first Nundinal day in the Irregular Calendar; from its fifth, the first Nundinal day in the Julian Correction, and thenceforwards, in the Julian Æra, as low down as we had the means of tracing it: which is in fact to the 400th Julian year, A. D. 355. So that, though this Nundinal Cycle of our Tables were to be considered and treated as merely the proper Roman Cycle of that kind, (that which first came into being along with the city of Rome itself,) it would still be exhibited in these Tables (faithfully and truly as well as continually exhibited) for 1104 years; and if even this Roman Cycle of the Nundinal day is still to

be regarded, (what it really was in itself,) as only a continuation under another name of a more ancient one of the same kind, which went back some hundreds of years further than the origin of the City of Rome; then, in these Roman Fasti and in the Tables compiled and proposed in a former part of this work [h], it is in reality exhibited (faithfully and truly exhibited) for 1694 years at least.

The student will observe that the last two columns of Table i are devoted to the Nundinal Cycle of the Calendar throughout; and that the first of them is headed NUNDINAL CHARACTER, the second NUNDINAL EPACT, throughout. The Nundinal Character in one of these instances is to be understood of the first Nundinal day in the year; the first day of the year for the time being which fell on the Feria prima of the Nundinal Cycle: just as the Hebdomadal Character of a given year at present might be understood of the first Sunday in the year; the first day of the year which fell on the Feria prima of the Hebdomadal Cycle. The Nundinal Epact of the year in the other instance is the number of days remaining at the end of the year over and above the last Nundinal Cycle (Cycle of 8 days) in the year.

In the Calendar of Romulus the first day of the year being Nundinal perpetually the Character of the year was unity perpetually; and no days remaining in such a year as his after the last complete cycle of the Nundinal day which entered it, the Epact was necessarily 0. In the Calendar of Numa, in that of the Decemvirs, in the Irregular Calendar, and in the Julian Correction, the Nundinal Character of the year must vary from 1 to 8; though some number, between unity and eight, in each of these forms of the Calendar it must be every year: and in each of them there must be every year a certain Nundinal Epact, a certain number of days over and above the last Nundinal day in the year, according to the length of the year. In the year of 355 days this Epact must be 3; in that of 378 it must be 2: in that of 377 it must be 1; in that of 356 it must be 4: in that of 354 it must be 2; in that of 365 it must be 5, and in that of 366 it must be 6.

The student will observe that in the Calendar of Numa

[h] Vol. ii. 674 sqq.

and in that of the Decemvirs these Nundinal Epacts recur, and in the same order, in every Cycle of 24 years; but not those Nundinal Characters: and that both those Characters and these Epacts, absolutely and relatively in all respects, recur only every *four* cycles of 24 years: and that in the Julian Correction (supposed to be regularly administered) the Epacts recur in the same order every four years, i. e. every Cycle of leap-year; the Characters and Epacts, in conjunction, only once in eight cycles of the leap-year. The Nundinal Period consequently in the Εἰκοσιτεταετηρίς of Numa or of the Decemvirs was a Period of 96 years; and in the Julian Calendar regularly administered it was one of 32 years. In the Irregular Calendar (whether the Irregular Form of the Decemviral, or the Irregular Form of the Julian Correction) in the nature of things there could be no perpetual Cycle either of the Nundinal Characters, or of the Nundinal Epacts. Each year in such a calendar must of course have its proper Character and its proper Epact; but there could be no period or cycle of recurrence of either.

The student will also observe that the relation of the Nundinal Epact to the Nundinal Character all through these Tables of our's is such that the Epact of a given year subtracted from the Character of the same year gives the Nundinal Character of the next year perpetually; only in applying this rule it is necessary to bear in mind that, if the Epact is equal to the Character (in which case the remainder seems to be 0), the Character of the next year is 8: if the Epact is greater than the Character the Character must be increased by 8, and the Epact must be subtracted from the sum.

Now the Nundinal Character of every other month in a given year being necessarily dependent on that of the first; if the Character of this first month in every year is known, a very easy calculation would deduce from it that of every other in the same year. In the old Nundinal Calendar and according to the old standard of the Nundinal month the first day of every month was Nundinal; and therefore the Character of every month was unity: but in the Nundinal Calendar of Romulus, in which the old standard was changed or modified, though the Character of the years was unity perpetually that of the months (throughout at least) could

be so no longer. In every other form of the Roman Calendar distinct from this and later than this there was room for still greater variety of this kind. To facilitate therefore all calculations of this sort, we have compiled the Tables of Nundinal Characters, embodied in Table vi: one for the Calendar of Romulus, one for the Calendar of Numa, two for the Decemviral, two for the Irregular, and two for the Julian Correction. The Argument of each of these is the Nundinal Character of a given year, known perpetually from Table i. That being known, these Tables will shew the Nundinal Character of every month in the same year as dependent upon it and deducible from it. The principle of each is too simple and obvious to require any explanation. Nothing is necessary for its use and application but the lengths of the months, the length of the Nundinal Cycle, and the Argument of the Table, i. e. the first Nundinal day in the first month of the year in question, from the 1st to the 8th; supplied by Table i perpetually.

SECTION VII.—*On the Idiomatic Roman division and reckoning of the days of the months.*

Lastly for the sake of younger and more inexperienced students, not yet familiar with the Roman distinctions of Kalendæ, Nonæ, and Idus respectively, we have thought it advisable to add two more Tables, (vii and viii respectively,) the former, to shew the STYLE of every month in every year which could enter the Calendar of Numa, the latter, the STYLE of every month in every year which could enter the Decemviral Calendar, or the Irregular Form of that Calendar. Table v already described is competent to serve the same purpose for every year which could enter the Julian Correction.

It is necessary however to observe on this subject that, though the idiomatic sense of the Kalendæ is always that of the first day of the month, and therefore the idiomatic division of the parts of the months among the Romans would thus appear to begin on the *first* of the month; it does in reality begin on the *second* of the month. The *style* at least properly so called, in every month, begins with that of the *Nonæ;* and then passes to that of the *Idus:* and ends with that of the *Kalendæ*. If so, the characteristic and classical

style of the Roman month in every instance begins with the *second* of the month, the day *after* the *Kalendæ;* the proper style of which was always either a. d. (ante diem) iv Nonas, or a. d. vi Nonas: a. d. iv Nonas, when the Nonæ fell on the 5th of the month, and a. d. vi Nonas, when they fell on the 7th of the month: and the student should know and bear in mind that they always fell on one or the other of these days in every month, and that too according to the length of the month; on the 5th, if the month had less than 31 days, on the 7th, if it had 31 days. And as the Nonæ themselves, (this 5th or this 7th day in every month,) were necessarily included in their own style; it is manifest that in reducing the Roman style of this division of the month to the modern the rule must be to subtract the given Roman date in the style of the Nones, diminished by unity, from *five* when the Nones fell on the 5th of the month, and from *seven* when they fell on the 7th. Thus a. d. iv Nonas, on this principle, in the former case would denote 5—3 or 2; and a. d. vi Nonas in the latter, 7—5 or 2: the second of the month in each alike.

In like manner the style of the second division, the style of the Idus, beginning on the day after that of the Nones, when the Nones fell on the 5th began on the 6th of the month, and, when they fell on the 7th, began on the 8th. And as the number of days, from the *Nones* exclusive to the *Ides* inclusive, in every month alike was *eight* exactly; the first day of this division in its own style in every month alike was necessarily a. d. viii Idus alike. And the Nones always falling on the 5th or on the 7th of the month, the Ides necessarily fell on the 13th or on the 15th. Hence, as the Idus themselves must be included in their own style, the rule in reducing the idiomatic style of this division too to the modern must be the same as in the reduction of that of the Nones; viz. to subtract the given date in the style of the Ides, diminished by unity, from 13, when the Ides fell on the 13th of the month, and from 15, when they fell on the 15th. Thus a. d. viii Idus in the former case will denote 13—7, the 6th of the month; and in the latter, 15—7, the 8th of the month: the day after the Nones in each case alike.

In like manner the style of the third division, that of the

Kalendæ, as taking up and continuing that of the second, must begin on the day after the Ides; on the 14th of the month, when the Ides fell on the 13th, and on the 16th when the Ides fell on the 15th. But, as it includes the Kalends of the next month, it takes in not only the remainder of its proper month but the first day of the next to it also. Consequently, in reducing the style of this third division in particular to the modern the rule must be something different from that for doing the same in each of the preceding divisions: viz. to add unity to the length of the month, and then to subtract the given Roman date in the style of the Kalends, diminished by unity as before, from the sum.

Now in the Calendar of Numa, in the Decemviral Calendar, and in the Irregular Calendar (except in the year of 356 days), the style of the Kalends was the same in every month but that of Februarius and that of the Merkedonius; and the first day so styled in all was a. d. xvii Kalendas of the next month. If then the month was one of 29 days, add unity to it, and subtract 16 from the sum; and you get the 14th of the month: the same term in the modern notation of these things as a. d. xvii Kal. in the Roman; and the day after the Idus also. If the month had 31 days, add unity to it, and subtract 16 from it as before; and you get a. d. xvii Kal. in the Roman style in such months the 16th of the month in the modern: the day after the Idus as before also. And this rule it is evident is just as applicable to the style of the Kalends in the Julian Correction as in the old Calendar; though, from the change which the Correction made in the length of some of the months, it began in some of them a day before the xvii Kal.: i. e. on the xviii Kal. (as in Aprilis, Junius, September, November); and in others two days earlier, i. e. on the xix Kal. as in Januarius, Augustus, and December: beginning in the old way only in four months, Martius, Maius, Julius, and October.

Even in the old Calendar the style of this division of the month in the month of Februarius and in that of the Merkedonius was necessarily an exception to the general rule. In the common years of the Cycle when Februarius had 28 days this style in that month began a. d. xvi Kalendas Martias; yet on the 14th of the month, the day after the Idus, in this case

as well as in the rest. In the intercalary years, when Februarius had only 23 days, it must have begun a. d. xi Kal. Interkalares; to denote the 14th of the month as before: and in the Irregular Calendar, in which Februarius might be a month of 27 days, the style in that case began a. d. xv Kalendas Martias, though on the 14th of the month as usual. In like manner, in the Merkedonius of 28 days the first day in the style of the Kalends was a. d. xvi Kalendas too (in the Calendar of Numa, a. d. xvi Kal. Januarias, in that of the Decemvirs, and in the Irregular Calendar, a. d. xvi Kal. Martias); in the Merkedonius of 27 days it began a. d. xv Kalendas (Januarias or Martias as before). And in years of 356 days (which as we have explained might enter the Irregular Calendar) it is probable that the style of the Kalends in December began a. d. xviii Kalendas Januarias; though in any other kind of year it did so only a.d. xvii Kal. Januarias. And in the Julian Correction, if December ever had 32 days, it is probable that in such cases it had an a. d. xx Kal. Januarias, denoting the 14th of the month as usual; or if this day even in such cases was still called a. d. xix Kal. Januarias, then the Pridie Kalendas was repeated: once for the 31st of the month, and again for the 32nd. And we incline to the opinion that the latter is what was actually done in this case.

Table I.—Calendar of Romulus.

Nundinal.

Sub Regibus.	Urbis Conditæ. Year.	Varr.	Cap.	Pcl.	B. C.		Cycle.	Year.	Days.	Martius i.	Nundinal Character.	Nundinal Epact
i Romulus 35 years.	1	4	3	1		750	i	i	304	Feb. 4	1	0
	2	5	4	2	750	*749		ii	304	Dec. 5	1	0
	3	6	5	3	749	748		iii	304	Oct. 4	1	0
	4	7	6	4	748	747		iv	304	Aug. 4	1	0
	5	8	7	5	747	746		v	304	June 4	1	0
	6	9	8	6	746	*745		vi	304	April 4	1	0
	6	9	8	6		*745	ii	i	304	Feb. 2	1	0
	7	10	9	7	745	744		ii	304	Dec. 2	1	0
	8	11	10	8	744	743		iii	304	Oct. 2	1	0
	9	12	11	9	743	742		iv	304	Aug. 2	1	0
	10	13	12	10	742	*741		v	304	June 2	1	0
	11	14	13	11	741	740		vi	304	April 1	1	0
	11	14	13	11		740	iii	i	304	Jan. 30	1	0
	12	15	14	12	740	739		ii	304	Nov. 30	1	0
	13	16	15	13	739	738		iii	304	Sept. 30	1	0
	14	17	16	14	738	*737		iv	304	July 31	1	0
	15	18	17	15	737	736		v	304	May 30	1	0
	16	19	18	16	736	735		vi	304	Mar. 30	1	0
	16	19	18	16		735	iv.	i	304	Jan. 28	1	0
	17	20	19	17	735	734		ii	304	Nov. 28	1	0
	18	21	20	18	734	*733		iii	304	Sept. 28	1	0
	19	22	21	19	733	732		iv	304	July 28	1	0
	20	23	22	20	732	731		v	304	May 28	1	0
	21	24	23	21	731	730		vi	304	Mar. 28	1	0

TABLE I.—CALENDAR OF ROMULUS.

Nundinal.

Sub Regibus.	Urbis Conditæ. Year.	Varr.	Cap.	Pol.	B. C.		Cycle.	Year.	Days.	Martius i.	Nundinal Character.	Nundinal Epact
Romulus.	21	24	23	21		730	v	i	304	Jan. 26	I	0
	22	25	24	22	730	*729		ii	304	Nov. 26	I	0
	23	26	25	23	729	728		iii	304	Sep. 26	I	0
	24	27	26	24	728	727		iv	304	July 27	I	0
	25	28	27	25	727	726		v	304	May 27	I	0
	26	29	28	26	726	*725		vi	304	Mar. 27	I	0
	26	29	28	26		*725	vi	i	304	Jan. 25	I	0
	27	30	29	27	725	724		ii	304	Nov. 24	I	0
	28	31	30	28	724	723		iii	304	Sep. 24	I	0
	29	32	31	29	723	722		iv	304	July 25	I	0
	30	33	32	30	722	*721		v	304	May 25	I	0
	31	34	33	31	721	720		vi	304	Mar. 24	I	0
	31	34	33	31		720	vii	i	304	Jan. 22	I	0
	32	35	34	32	720	719		ii	304	Nov. 22	I	0
	33	36	35	33	719	718		iii	304	Sep. 22	I	0
	34	37	36	34	718	*717		iv	304	July 23	I	0
	35	38	37	35	717	716		v	304	May 22	I	0
	36	39	38	36	716	715		vi	304	Mar. 22	I	0
	36	39	38	36		715	viii	i	304	Jan. 20	I	0
Interregnum.	2	40	39	37	715	714		ii	304	Nov. 20	I	0
ii Numa 43 years..	1	41	40	38	714	*713		iii	304	Sep. 20	I	0
	2	42	41	39	713	712		iv	304	July 20	I	0

Table I.—Calendar of Numa Pompilius.

Nundinal Period I. Cycle I.

Sub Regibus.	Year.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. i.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
ii Numa	2	42	41	39	712	i	25	355	Feb. 17	5	3
	3	43	42	40	711	*ii	26	377	7	2	1
	4	44	43	41	710	iii	19	355	19	1	3
	5	45	44	42	*709	*iv	20	378	9	6	2
	6	46	45	43	708	v	14	355	Feb. 21	4	3
	7	47	46	44	707	*vi	15	377	11	1	1
	8	48	47	45	706	vii	8	355	23	8	3
	9	49	48	46	*705	*viii	9	378	13	5	2
	10	50	49	47	704	ix	3	355	Feb. 25	3	3
	11	51	50	48	703	*x	4	377	15	8	1
	12	52	51	49	702	xi	27	355	27	7	3
	13	53	52	50	*701	*xii	28	378	17	4	2
	14	54	53	51	700	xiii	22	355	Mar. 1	2	3
	15	55	54	52	699	*xiv	23	377	Feb. 19	7	1
	16	56	55	53	698	xv	16	355	Mar. 3	6	3
	17	57	56	54	*697	*xvi	17	378	Feb. 21	3	2
	18	58	57	55	696	xvii	11	355	Mar. 5	1	3
	19	59	58	56	695	*xviii	12	377	Feb. 23	6	1
	20	60	59	57	694	xix	5	355	Mar. 7	5	3
	21	61	60	58	*693	xx	6	355	Feb. 25	2	3
	22	62	61	59	692	*xxi	7	377	Feb. 14	7	1
	23	63	62	60	691	xxii	30	355	26	6	3
	24	64	63	61	690	xxiii	1	355	16	3	3
	25	65	64	62	*689	*xxiv	2	377	6	8	1

TABLE I.—CALENDAR OF NUMA POMPILIUS.

Nundinal Period I. Cycle II.

Sub Regibus.	Urbis Conditæ. Year.	Varr.	Cap.	Pol.	B. C.	Cycle. ii.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
ii Numa	26	66	65	63	688	i	25	355	Feb. 17	7	3
	27	67	66	64	687	*ii	26	377	7	4	1
	28	68	67	65	686	iii	19	355	19	3	3
	29	69	68	66	*685	*iv	20	378	9	8	2
	30	70	69	67	684	v	14	355	Feb. 21	6	3
	31	71	70	68	683	*vi	15	377	11	3	1
	32	72	71	69	682	vii	8	355	23	2	3
	33	73	72	70	*681	*viii	9	378	13	7	2
	34	74	73	71	680	ix	3	355	Feb. 25	5	3
	35	75	74	72	679	*x	4	377	15	2	1
	36	76	75	73	678	xi	27	355	27	1	3
	37	77	76	74	*677	*xii	28	378	17	6	2
	38	78	77	75	676	xiii	22	355	Mar. 1	4	3
	39	79	78	76	675	*xiv	23	377	Feb. 19	1	1
	40	80	79	77	674	xv	16	355	Mar. 3	8	3
	41	81	80	78	*673	*xvi	17	378	Feb. 21	5	2
	42	82	81	79	672	xvii	11	355	Mar. 5	3	3
	43	83	82	80	671	*xviii	12	377	Feb. 23	8	1
Tullus Hostilius 32 years.	1	84	83	81	670	xix	5	355	Mar. 7	7	3
	2	85	84	82	*669	xx	6	355	Feb. 25	4	3
	3	86	85	83	668	*xxi	7	377	Feb. 14	1	1
	4	87	86	84	667	xxii	30	355	26	8	3
	5	88	87	85	666	xxiii	1	355	16	5	3
	6	89	88	86	*665	*xxiv	2	377	6	2	1

Table I.—Calendar of Numa Pompilius.

Nundinal Period I. Cycle III.

Sub Regibus.	Year.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. iii.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
iii Tullus Hostilius	7	90	89	87	664	i	25	355	Feb. 17	1	3
	8	91	90	88	663	*ii	26	377	7	6	1
	9	92	91	89	662	iii	19	355	19	5	3
	10	93	92	90	*661	*iv	20	378	9	2	2
	11	94	93	91	660	v	14	355	Feb. 21	8	3
	12	95	94	92	659	*vi	15	377	11	5	1
	13	96	95	93	658	vii	8	355	23	4	3
	14	97	96	94	*657	*viii	9	378	13	1	2
	15	98	97	95	656	ix	3	355	Feb. 25	7	3
	16	99	98	96	655	*x	4	377	15	4	1
	17	100	99	97	654	xi	27	355	27	3	3
	18	101	100	98	*653	*xii	28	378	17	8	2
	19	102	101	99	652	xiii	22	355	Mar. 1	6	3
	20	103	102	100	651	*xiv	23	377	Feb. 19	3	1
	21	104	103	101	650	xv	16	355	Mar. 3	2	3
	22	105	104	102	*649	*xvi	17	378	Feb. 21	7	2
	23	106	105	103	648	xvii	11	355	Mar. 5	5	3
	24	107	106	104	647	*xviii	12	377	Feb. 23	2	1
	25	108	107	105	646	xix	5	355	Mar. 7	1	3
	26	109	108	106	*645	xx	6	355	Feb. 25	6	3
	27	110	109	107	644	*xxi	7	377	14	3	1
	28	111	110	108	643	xxii	30	355	26	2	3
	29	112	111	109	642	xxiii	1	355	16	7	3
	30	113	112	110	*641	*xxiv	2	377	6	4	1

TABLE I.—CALENDAR OF NUMA POMPILIUS.

Nundinal Period I. Cycle IV.

Sub Regibus.	Year.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. iv.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
iii Tullus Hostilius	31	114	113	111	640	i	25	355	Feb. 17	3	3
	32	115	114	112	639	*ii	26	377	7	8	1
iv Ancus Martius 24 years	1	116	115	113	638	iii	19	355	19	7	3
	2	117	116	114	*637	*iv	20	378	9	4	2
	3	118	117	115	636	v	14	355	Feb. 21	2	3
	4	119	118	116	635	*vi	15	377	11	7	1
	5	120	119	117	634	vii	8	355	23	6	3
	6	121	120	118	*633	*viii	9	378	13	3	2
	7	122	121	119	632	ix	3	355	Feb. 25	1	3
	8	123	122	120	631	*x	4	377	15	6	1
	9	124	123	121	630	xi	27	355	27	5	3
	10	125	124	122	*629	*xii	28	378	17	2	2
	11	126	125	123	628	xiii	22	355	Mar. 1	8	3
	12	127	126	124	627	*xiv	23	377	Feb. 19	5	1
	13	128	127	125	626	xv	16	355	Mar. 3	4	3
	14	129	128	126	*625	*xvi	17	378	Feb. 21	1	2
	15	130	129	127	624	xvii	11	355	Mar. 5	7	3
	16	131	130	128	623	*xviii	12	377	Feb. 23	4	1
	17	132	131	129	622	xix	5	355	Mar. 7	3	3
	18	133	132	130	*621	xx	6	355	Feb. 25	8	3
	19	134	133	131	620	*xxi	7	377	14	5	1
	20	135	134	132	619	xxii	30	355	26	4	3
	21	136	135	133	618	xxiii	1	355	16	1	3
	22	137	136	134	*617	*xxiv	2	377	6	6	1

Table I.—Calendar of Numa Pompilius.

Nundinal Period II. Cycle I.

Sub Regibus.	Year.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. v.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
iv Ancus Martius.	23	138	137	135	616	i	25	355	Feb. 17	5	3
	24	139	138	136	615	*ii	26	377	7	2	1
v Tarquinius Priscus, 38 years ..	1	140	139	137	614	iii	19	355	19	1	3
	2	141	140	138	*613	*iv	20	378	9	6	2
	3	142	141	139	612	v	14	355	Feb. 21	4	3
	4	143	142	140	611	*vi	15	377	11	1	1
	5	144	143	141	610	vii	8	355	23	8	3
	6	145	144	142	*609	*viii	9	378	13	5	2
	7	146	145	143	608	ix	3	355	Feb. 25	3	3
	8	147	146	144	607	*x	4	377	15	8	1
	9	148	147	145	606	xi	27	355	27	7	3
	10	149	148	146	*605	*xii	28	378	17	4	2
	11	150	149	147	604	xiii	22	355	Mar. 1	2	3
	12	151	150	148	603	*xiv	23	377	Feb. 19	7	1
	13	152	151	149	602	xv	16	355	Mar. 3	6	3
	14	153	152	150	*601	*xvi	17	378	Feb. 21	3	2
	15	154	153	151	600	xvii	11	355	Mar. 5	1	3
	16	155	154	152	599	*xviii	12	377	Feb. 23	6	1
	17	156	155	153	598	xix	5	355	Mar. 7	5	3
	18	157	156	154	*597	xx	6	355	Feb. 25	2	3
	19	158	157	155	596	*xxi	7	377	Feb. 14	7	1
	20	159	158	156	595	xxii	30	355	26	6	3
	21	160	159	157	594	xxiii	1	355	16	3	3
	22	161	160	158	*593	*xxiv	2	377	6	8	1

TABLE I.—CALENDAR OF NUMA POMPILIUS.

Nundinal Period II. Cycle II.

Sub Regibus.	Year.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. vi.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
v Tarquinius Priscus	23	162	161	159	592	i	25	355	Feb. 17	7	3
	24	163	162	160	591	*ii	26	377	7	4	1
	25	164	163	161	590	iii	19	355	19	3	3
	26	165	164	162	*589	*iv	20	378	9	8	2
	27	166	165	163	588	v	14	355	Feb. 21	6	3
	28	167	166	164	587	*vi	15	377	11	3	1
	29	168	167	165	586	vii	8	355	23	2	3
	30	169	168	166	*585	*viii	9	378	13	7	2
	31	170	169	167	584	ix	3	355	Feb. 25	5	3
	32	171	170	168	583	*x	4	377	15	2	1
	33	172	171	169	582	xi	27	355	27	1	3
	34	173	172	170	*581	*xii	28	378	17	6	2
	35	174	173	171	580	xiii	22	355	Mar. 1	4	3
	36	175	174	172	579	*xiv	23	377	Feb. 19	1	1
	37	176	175	173	578	xv	16	355	Mar. 3	8	3
	38	177	176	174	*577	*xvi	17	378	Feb. 21	5	2
vi Servius Tullius, 43 years	1	178	177	175	576	xvii	11	355	Mar. 5	3	3
	2	179	178	176	575	*xviii	12	377	Feb. 23	8	1
	3	180	179	177	574	xix	5	355	Mar. 7	7	3
	4	181	180	178	*573	xx	6	355	Feb. 25	4	3
	5	182	181	179	572	*xxi	7	377	Feb. 14	1	1
	6	183	182	180	571	xxii	30	355	26	8	3
	7	184	183	181	570	xxiii	1	355	16	5	3
	8	185	184	182	*569	*xxiv	2	377	6	2	1

TABLE I.—CALENDAR OF NUMA POMPILIUS.

Nundinal Period II. Cycle III.

Sub Regibus.	Year.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. vii.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
vi Servius Tullius	9	186	185	183	568	i	25	355	Feb. 17	1	3
	10	187	186	184	567	*ii	26	377	7	6	1
	11	188	187	185	566	iii	19	355	19	5	3
	12	189	188	186	*565	*iv	20	378	9	2	2
	13	190	189	187	564	v	14	355	Feb. 21	8	3
	14	191	190	188	563	*vi	15	377	11	5	1
	15	192	191	189	562	vii	8	355	23	4	3
	16	193	192	190	*561	*viii	9	378	13	1	2
	17	194	193	191	560	ix	3	355	Feb. 25	7	3
	18	195	194	192	559	*x	4	377	15	4	1
	19	196	195	193	558	xi	27	355	27	3	3
	20	197	196	194	*557	*xii	28	378	17	8	2
	21	198	197	195	556	xiii	22	355	Mar. 1	6	3
	22	199	198	196	555	*xiv	23	377	Feb. 19	3	1
	23	200	199	197	554	xv	16	355	Mar. 3	2	3
	24	201	200	198	*553	*xvi	17	378	Feb. 21	7	2
	25	202	201	199	552	xvii	11	355	Mar. 5	5	3
	26	203	202	200	551	*xviii	12	377	Feb. 23	2	1
	27	204	203	201	550	xix	5	355	Mar. 7	1	3
	28	205	204	202	*549	xx	6	355	Feb. 25	6	3
	29	206	205	203	548	*xxi	7	377	Feb. 14	3	1
	30	207	206	204	547	xxii	30	355	26	2	3
	31	208	207	205	546	xxiii	1	355	16	7	3
	32	209	208	206	*545	*xxiv	2	377	6	4	1

TABLE I.—CALENDAR OF NUMA POMPILIUS.

Nundinal Period II. Cycle IV.

Sub Regibus.	Urbis Conditæ. Year.	Varr.	Cap.	Pol.	B. C.	Cycle. viii.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
vi Servius Tullius	33	210	209	207	544	i	25	355	Feb. 17	3	3
	34	211	210	208	543	*ii	26	377	7	8	1
	35	212	211	209	542	iii	19	355	19	7	3
	36	213	212	210	*541	*iv	20	378	9	4	2
	37	214	213	211	540	v	14	355	Feb. 21	2	3
	38	215	214	212	539	*vi	15	377	11	7	1
	39	216	215	213	538	vii	8	355	23	6	3
	40	217	216	214	*537	*viii	9	378	13	3	2
	41	218	217	215	536	ix	3	355	Feb. 25	1	3
	42	219	218	216	535	*x	4	377	15	6	1
	43	220	219	217	534	xi	27	355	27	5	3
vii Tarquinius Superbus, 25 years	1	221	220	218	*533	*xii	28	378	17	2	2
	2	222	221	219	532	xiii	22	355	Mar. 1	8	3
	3	223	222	220	531	*xiv	23	377	Feb. 19	5	1
	4	224	*223	221	530	xv	16	355	Mar. 3	4	3
	5	225	224	222	*529	*xvi	17	378	Feb. 21	1	2
	6	226	225	223	528	xvii	11	335	Mar. 5	7	3
	7	227	226	224	527	*xviii	12	377	Feb. 23	4	1
	8	228	227	225	526	xix	5	355	Mar. 7	3	3
	9	229	228	226	*525	xx	6	355	Feb. 25	8	3
	10	230	229	227	524	*xxi	7	377	Feb. 14	5	1
	11	231	230	228	523	xxii	30	355	26	4	3
	12	232	231	229	522	xxiii	1	355	16	1	3
	13	233	232	230	*521	*xxiv	2	377	6	6	1

Table I.—Calendar of Numa Pompilius.

Nundinal Period III. Cycle I.

Sub Regibus.	Year.	Urbis Conditæ. Varr.	Cap.	Pol.	B.C.	Cycle. ix.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
vii Tarquinius Superbus	14	234	233	234	520	i	25	355	Feb. 17	5	3
	15	235	234	232	519	*ii	26	377	7	2	1
	16	236	235	233	518	iii	19	355	19	1	3
	17	237	236	234	*517	*iv	20	378	9	6	2
	18	238	237	235	516	v	14	355	Feb. 24	4	3
	19	239	238	236	515	*vi	15	377	11	1	1
	20	240	239	237	514	vii	8	355	23	8	3
	21	241	240	238	*513	*viii	9	378	13	5	2
	22	242	241	239	512	ix	3	355	Feb. 25	3	3
	23	243	242	240	511	*x	4	377	15	8	1
Sub Consulibus, &c.	24	244	243	241	510	xi	27	355	27	7	3
*Lucius Iunius Brutus *Lucius Tarquinius Collatinus	25	245	244	242	*509	*xii	28	378	17	4	2

TABLE I.—CALENDAR OF NUMA POMPILIUS.

Consular Ingress, the Kalends of January.

Sub Consulibus, &c.	Urbis Conditæ.			B. C.	Cycle.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact.
	Varr.	Cap.	Pol.		ix.					
Publius Valerius Poplicola ii T. Lucretius Tricipitinus	246	245	243	508	xiii	22	355	Mar. 1	2	3
M. Horatius Pulvillus ii P. Valerius Poplicola iii	247	246	244	507	*xiv	23	377	Feb. 19	7	1
Spurius Lartius Flavus T. Herminius Aquilinus	248	247	245	506	xv	16	355	Mar. 3	6	3
M. Valerius P. Postumius Tubertus	249	248	246	*505	*xvi	17	378	Feb. 21	3	2
P. Valerius Poplicola iiii T. Lucretius Tricipitinus ii	250	249	247	504	xvii	11	355	Mar. 5	1	3
P. Postumius Tubertus ii Agrippa Menenius Lanatus	251	250	248	503	*xviii	12	377	Feb. 23	6	1
Opiter Virginius Tricostus Spurius Cassius Viscellinus	252	251	249	502	xix	5	355	Mar. 7	5	3
Postumus Cominius Auruncus T. Lartius Flavus	253	252	250	*501	xx	6	355	Feb. 25	2	3
Servius Sulpicius Camerinus, Manius Tullus Longus	254	253	251	500	*xxi	7	377	Feb. 14	7	1
T. Aebutius Elva P. Vetusius Geminus	255	254	252	499	xxii	30	355	26	6	3
Q. Cloelius Siculus T. Lartius Flavus ii	256	255	253	498	xxiii	1	355	16	3	3
A. Sempronius Atratinus M. Minucius Augurinus.	257	256	254	*497	*xxiv	2	377	6	8	1

Table I.—Calendar of Numa Pompilius.

Nundinal Period III. Cycle II.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. x.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
A. Postumius Albus Regillensis T. Virginius Tricostus	258	257	255	496	i	25	355	Feb. 17	7	3
Appius Claudius Sabinus Regillensis P. Servilius Priscus	259	258	256	495	*ii	26	377	7	4	1
A. Virginius Tricostus Caelimontanus T. Vetusius Geminus Cicurinus	260	259	257	494	iii	19	355	19	3	3
Spurius Cassius Viscellinus ii Postumus Cominius Auruncus ii	261	260	258	*493	*iv	20	378	9	8	2
T. Geganius Macerinus P. Minucius Augurinus	262	261	259	492	v	14	355	Feb. 21	6	3
M. Minucius Augurinus ii A. Sempronius Atratinus ii	263	262	260	491	*vi	15	377	11	3	1
Q. Sulpicius Camerinus Spurius Lartius Flavus ii	264	263	261	490	vii	8	355	23	2	3
Caius Iulius Iulus P. Pinarius Rufus Mamercinus	265	264	262	*489	*viii	9	378	13	7	2
Spurius Nautius Rutilus Sextus Furius Fusus	266	265	263	488	ix	3	355	Feb. 25	5	3
T. Sicinius Sabinus C. Aquilius Tuscus	267	266	264	487	*x	4	377	15	2	1
Sp. Cassius Viscellinus iii Proculus Virginius Tricostus Rutilus	268	267	265	486	xi	27	355	27	1	3
Ser. Cornelius Maluginensis Cossus Q. Fabius Vibulanus	269	268	266	*485	*xii	28	378	17	6	2

TABLE I.—CALENDAR OF NUMA POMPILIUS.

Consular Ingress, the Kalends of January.

Sub Consulibus, &c.	Urbis Conditæ. Var.	Cap.	Pol.	B. C.	Cycle. x.	Lunar Character.	Days.	Kalendæ Januariæ	Nundinal Inracter.	Nundinal Epact
L. Aemilius Mamercinus †Kaeso Fabius Vibulanus	270	269	267	484	xiii	22	355	Mar. 1	4	3
M. Fabius Vibulanus L. Valerius Poplicola Potitus	271	270	268	483	*xiv	23	377	Feb. 19	1	1
†C. Iulius Iulus †Q. Fabius Vibulanus ii	272	271	269	482	xv	16	355	Mar. 3	8	3
Caeso Fabius Vibulanus ii Sp. Furius Fusus	273	272	270	*481	*xvi	17	378	Feb. 21	5	2
†Cn. Manlius Cincinnatus †M. Fabius Vibulanus ii	274	273	271	480	xvii	11	355	Mar. 5	3	3
Caeso Fabius Vibulanus iii T. Virginius Tricostus Rutilus	275	274	272	479	*xviii	12	377	Feb. 23	8	1
L. Aemilius Mamercinus ii *C. Servilius Structus Ahala	276	275	273	478	xix	5	355	Mar. 7	7	3
Caius Horatius Pulvillus T. Menenius Lanatus	277	276	274	*477	xx	6	355	Feb. 25	4	3
A. Virginius Tricostus Rutilus Sp. Servilius Structus	278	277	275	476	*xxi	7	377	Feb. 14	1	1
†P. Valerius Poplicola †C. Nautius Rutilus	279	278	276	475	xxii	30	355	26	8	3
L. Furius Medullinus Fusus A. Manlius Vulso	280	279	277	474	xxiii	1	355	16	5	3
L. Aemilius Mamercinus iii Vopiscus Iulius Iulus	281	280	278	*473	*xxiv	2	377	6	2	1

Table I.—Calendar of Numa Pompilius.

Nundinal Period III. Cycle III.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. xi.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
L. Pinarius Rufus Mamercinus P. Furius Fusus	282	281	279	472	i	25	355	Feb. 17	I	3
Appius Claudius Sabinus Regillensis T. Quinctius Barbatus Capitolinus	283	282	280	471	*ii	26	377	7	6	1
L. Valerius Poplicola Potitus ii Tiberius Aemilius Mamercinus	284	283	281	470	iii	19	355	19	5	3
T. Numicius Priscus A. Virginius Tricostus Coelimontanus ii	285	284	282	*469	*iv	20	378	9	2	2
T. Quinctius Barbatus Capitolinus ii Q. Servilius Priscus	286	285	283	468	v	14	355	Feb. 21	8	3
Tiberius Aemilius Mamercinus ii Q. Fabius Vibulanus	287	286	284	467	*vi	15	377	11	5	1
Sp. Postumius Albus Regillensis Q. Servilius Priscus ii	288	287	285	466	vii	8	355	23	4	3
Q. Fabius Vibulanus ii T. Quinctius Barbatus Capitolinus iii	289	288	286	*465	*viii	9	378	13	1	2
A. Postumius Albus Regillensis Sp. Furius Medullinus Fusus	290	289	287	464	ix	3	355	Feb. 25	7	3
†P. Servilius Priscus †L. Aebutius Elva	291	290	288	463	*x	4	377	15	4	1
L. Lucretius Tricipitinus T. Veturius Geminus Cicurinus	292	291	289	462	xi	27	355	27	3	3
P. Volumnius Amintinus Gallus Ser. Sulpicius Camerinus	293	292	290	*461	*xii	28	378	17	8	2

TABLE I.—CALENDAR OF NUMA POMPILIUS.

Consular Ingress, the Kalends of January.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B.C.	Cycle. xi.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
*†P. Valerius Poplicola ii †C. Claudius Inregill. Sabinus	294	293	291	460	xiii	22	355	Mar. 1	6	3
†Q. Fabius Vibulanus iii †L. Cornelius Maluginesis Vritin	295	294	292	459	*xiv	23	377	Feb. 19	3	1
†C. Nautius Rutilus ii *† .. .. Carventanus *Suff.* *L. Minucius Esquilin. Augurin	296	295	293	458	xv	16	355	Mar. 3	2	3
†C. Horatius Pulvillus ii †Q. Minucius Esquilinus	297	296	294	*457	*xvi	17	378	Feb. 21	7	2
†M. Valerius Maxumus †Sp. Verginius Tricost. Caeliomont	298	297	295	456	xvii	11	355	Mar. 5	5	3
†T. Romilius Rocus Vaticanus †C. Veturius Cicurinus	299	298	296	455	*xviii	12	377	Feb. 23	2	1
†P. Tarpeius Montan. Capitolin †A. Aternius Varus Fontinalis	300	299	297	454	xix	5	355	Mar. 7	1	3
†Sex. Quinctilius †P. Curiatius Fistus Trigemin	301	300	298	*453	xx	6	355	Feb. 25	6	3
†P. Sestius Capitol. Vaticanus †T. Menenius Lanatus	302	301	299	452	*xxi	7	377	Feb. 14	3	1
†Ap. Claudius Crass. Inrigill. Sabinus ii †T. Genucius Augurinus, &c. (Consules et Decemviri.)	303	302	300	451	xxii	30	355	26	2	3
Decemviri †Ap. Claudius Crass. Inrigill. Sabin. ii †M. Cornelius Maluginesis, &c.	304	303	301	450	xxiii	1	355	16	7	3
Decemviri *Appius Claudius Crassinus iii *Q. Fabius Vibulanus ii, &c.	305	304	302	*449	*xxiv	2 = 27	377 = 327	6	4	1 = 7

Table I.—Calendar of the Decemvirs.

Nundinal Period I. Cycle I.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. i.	Lunar Character.	Day.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Lar. Herminius Aquilinus T. Virginius Tricostus Caelimontanus	306	305	303	449 448	*i	4	377	Dec. 29	5	1
M. Geganius Macerinus C. Iulius Iulus	307	306	304	447	ii	27	355	Jan. 10	4	3
T. Quinctius Capitolinus Barbatus iiii Agrippa Furius Fusus	308	307	305	447 446	*iii	28	378	Dec. 31	1	2
M. Genucius Augurinus C. Curtius Philo	309	308	306	*445	iv	22	355	Jan. 13	7	3
Trib. Mil. iii *A. Sempronius Atratinus *L. Atilius Longus *T. Cloelius Siculus	310	309	307	444	*v	23	377	Jan. 2	4	1
M. Geganius Macerinus ii T. Quinctius Capitolinus Barbatus v	311	310	308	443	vi	16	355	14	3	3
M. Fabius Vibulanus Postumus Aebutius Cornicen	312	311	309	442	*vii	17	378	4	8	2
C. Furius Pacilus Fusus M. Papirius Crassus	313	312	310	*441	viii	11	355	17	6	3
Proculus Geganius Macerinus L. Menenius Lanatus	314	313	311	440	*ix	12	377	Jan. 6	3	1
T. Quinctius Capitolinus vi Agrippa Menenius Lanatus	315	314	312	439	x	5	355	18	2	3
Trib. Mil. iii Mamercus Aemilius Mamercinus L. Quinctius Cincinnatus L. Iulius Iulus	316	315	313	438	*xi	6	378	8	7	2
M. Geganius Macerinus iii L. Sergius Fidenas	317	316	314	*437	xii	30	355	21	5	3

TABLE I.—CALENDAR OF THE DECEMVIRS.

Consular Ingress, the Ides of December.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. i.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
M. Cornelius Maluginensis L. Papirius Crassus	318	317	315	436	*xiii	1	377	Jan. 10	2	1
C. Iulius Iulus ii L. Virginius Tricostus	319	318	316	435	xiv	24	355	22	1	3
C. Iulius Iulus iii L. Virginius Tricostus (ii)	320	319	317	434	*xv	25	378	12	6	2
Trib. Mil. iii } M. Fabius Vibulanus M. Foslius Flaccinator L. Sergius Fidenas	321	320	318	*433	xvi	19	355	25	4	3
Trib. Mil. iii } L. Pinarius Rufus Mamercinus L. Furius Medullinus Sp. Postumius Albus Regillensis	322	321	319	432	*xvii	20	377	Jan. 14	1	1
T. Quinctius Pennus Cincinnatus C. Iulius Mento	323	322	320	431	xviii	13	355	26	8	3
L. Papirius Crassus L. Iulius Iulus	324	323	321	430	*xix	14	377	16	5	1
L. Sergius Fidenas ii Hostus Lucretius Tricipitinus	325	324	322	*429	xx	7	355	28	4	3
A. Cornelius Cossus T. Quinctius Pennus Cincinnatus ii	326	325	323	428	xxi	8	355	Jan. 17	1	3
C. Servilius Structus Ahala L. Papirius Mugillanus ii	327	326	324	427	*xxii	9	377	7	6	1
Trib. Mil. iv } T. Quinctius Pennus Cincinnatus C. Furius Pacilus M. Postumius Albus Regillensis, &c.	328	327	325	426	xxiii	2	355	19	5	3
Trib. Mil. iv } A. Sempronius Atratinus L. Quinctius Cincinnatus ii L. Furius Medullinus ii, &c.	329	328	326	*425	xxiv	3	355	9	2	3

Table I.—Calendar of the Decemvirs.

Nundinal Period I. Cycle II.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. ii.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Trib. Mil. iv. Appius Claudius Crassus Regillensis, Sp. Nautius Rutilus, L. Sergius Fidenas, &c.	330	329	327	425	424	*i	4	377	Dec. 29	7	1
C. Sempronius Atratinus, Q. Fabius Vibulanus	331	330	328		423	ii	27	355	Jan. 10	6	3
Trib. Mil. iv. L. Manlius Vulso Capitolinus, †L. Papirius Mugillanus, Q. Antonius Merenda, &c.	332	331	329	423	422	*iii	28	378	Dec. 31	3	2
†T. Quinctius Capitolinus Barbatus, Numerius Fabius Vibulanus	333	332	330		*421	iv	22	355	Jan. 13	1	3
Trib. Mil. iv. T. Quinctius Pennus Cincinnatus ii, L. Furius Medullinus iii, M. Manlius Vulso Capitolinus, &c.	334	333	331		420	*v	23	377	Jan. 2	6	1
Trib. Mil. iv. Agrippa Menenius Lanatus, P. Lucretius Tricipitinus, Sp. Nautius Rutilus, &c.	335	334	332		419	vi	16	355	14	5	3
Trib. Mil. iii. †M. Papirius Mugillanus, †L. Servilius Axilla ii, L. Sergius Fidenas iii	336	335	333		418	*vii	17	378	4	2	2
Trib. Mil. iv. †P. Lucretius Tricipitinus ii, †Agrippa Menenius Lanatus ii, L. Servilius Structus ii, &c.	337	336	334		*417	viii	11	355	17	8	3
Trib. Mil. iv. A. Sempronius Atratinus iii, †Q. Fabius Vibulanus, M. Papirius Mugillanus ii, &c.	338	337	335		416	*ix	12	377	Jan. 6	5	1
Trib. Mil. iv. P. Cornelius Cossus, C. Valerius Potitus Volusus, Quinctius Cincinnatus, &c.	339	338	336		415	x	5	355	18	4	3
Trib. Mil. iv. †Q. Fabius Vibulanus ii, †P. Postumius Albus Regillensis, †Cn. Cornelius Cossus, &c.	340	339	337		414	*xi	6	378	8	1	2
M. Cornelius Cossus, L. Furius Medullinus	341	340	338		*413	xii	30	355	21	7	3

TABLE I.—CALENDAR OF THE DECEMVIRS.

Consular Ingress, the Ides of December.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. ii.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Q. Fabius Ambustus C. Furius Pacilus	342	341	339	412	*xiii	1	377	Jan. 10	4	1
M. Papirius Mugillanus C. Nautius Rutilus	343	342	340	411	xiv	24	355	22	3	3
M'. Aemilius Mamercinus C. Valerius Potitus Volusus	344	343	341	410	*xv	25	378	12	8	2
Cn. Cornelius Cossus L. Furius Medullinus ii	345	344	342	*409	xvi	19	355	25	6	3
Trib. Mil. iii. C. Iulius Iulus, P. Cornelius Cossus, C. Servilius Ahala	346	345	343	408	*xvii	20	377	Jan. 14	3	1
Trib. Mil. iv. †C. Valerius Potitus Volusus ii, L. Furius Medullinus, †C. Servilius Ahala ii, &c.	347	346	344	407	xviii	13	355	26	2	3
Trib. Mil. iv. P. Cornelius Rutilus Cossus, Cn. Cornelius Cossus, L. Valerius Potitus ii, &c.	348	347	345	406	*xix	14	377	16	7	1
Trib. Mil. vi. †C. Iulius Iulus ii, T. Quinctius Capitolinus Barbatus, Q. Quinctius Cincinnatus, &c.	349	348	346	*405	xx	7	355	28	6	3
Trib. Mil. vi. †P. Cornelius Maluginensis, †Cn. Cornelius Cossus ii, †K. Fabius Ambustus, &c.	350	349	347	404	xxi	8	355	Jan. 17	3	3
Trib. Mil. vi. †M'. Aimilius Mamercinus ii, †Ap. Claudius Crassus Inregillensis, †M. Quinctilius Varus, &c.	351	350	348	403	*xxii	9	377	7	8	1
Trib. Mil. vi. †C. Servilius Ahala iii, †Q. (Servilius) Fidenas, †L. Virginius Tricost. Esquilinus &c.	352	351	349	402	xxiii	2	355	19	7	3
Trib. Mil. vi. †M. Furius Camillus, †Cn. Cornelius Cossus iii, †L. Valerius Potitus iiii, &c.	353	352	350	*401	xxiv	3	355	9	4	3

Table I.—Calendar of the Decemvirs.

Nundinal Period I. Cycle III.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. iii.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Trib. Mil. vi. †P. Manlius Vulso †P. Licinius Calvus Esquilinus †L. Titinius Pansa Saccus, &c.	354	353	351	401	400	*i	4	377	Dec. 29	I	I
Trib. Mil. vi. †Cn. Genucius Augurinus †L. Atilius Priscus †M. Pomponius Rufus, &c.	355	354	352		399	ii	27	355	Jan. 10	8	3
Trib. Mil. vi. †L. Valerius Potitus v †M. Valerius Lactucin. Maximus †M. Furius Camillus ii, &c.	356	355	353	399	398	*iii	28	378	Dec. 31	5	2
Trib. Mil. vi. †L. Iulius Iulus ii †L. Furius Medullinus iv †A. Postumius Albinus Regillensis, &c.	357	356	354		*397	iv	22	355	Jan. 13	3	3
Trib. Mil. vi. †L. Titinius Pansa Saccus ii †P. Licinius Calvus Esquilinus ii †P. Maelius Capitolinus ii, &c.	358	357	355		396	*v	23	377	Jan. 2	8	I
Trib. Mil. vi. †P. Cornelius Cossus †P. Cornelius Scipio †K. Fabius Ambustus iii, &c.	359	358	3 6		395	vi	16	355	14	7	3
Trib. Mil. vi. †M. Furius Camillus iii †L. Furius Medullinus vi †C. Aimilius Mamercinus, &c.	360	359	357		394	*vii	17	378	4	4	2
L. Lucretius Flavus Ser. Sulpicius Camerinus	361	360	358		*393	viii	11	355	17	2	3
L. Valerius Potitus M. Manlius Capitolinus	362	361	359		392	*ix	12	377	Jan. 6	7	I
Trib. Mil. vi. L. Lucretius Flavus Ser. Sulpicius Camerinus M. Aemilius Mamercinus, &c.	363	362	360		391	x	5	355	18	6	3
Trib. Mil. vi. Q. Fabius Ambustus Caeso Fabius Ambustus C. Fabius Ambustus, &c.	364	363	361		390	*xi	6	378	8	3	2
Dict. Mag. Eq. M. Furius Camillus L. Valerius	365	364	362		*389	xii	30	355	21	I	3

TABLE I.—CALENDAR OF THE DECEMVIRS.

Consular Ingress, the Ides of December.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. iii.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Trib. Mil. vi. L. Valerius Poplicola ii, L. Virginius Tricostus, P. Cornelius Cossus, &c.	366	365	363	388	*xiii	1	377	Jan. 10	6	1
Trib. Mil. vi. T. Quinctius Cincinnatus, Q. Servilius Priscus Fidenas v, L. Iulius Iulus, &c.	367	366	364	387	xiv	24	355	22	5	3
Trib. Mil. vi. Lucius Papirius Cursor, C. Sergius Fidenas, L. Aemilius Mamercinus ii, &c.	368	367	365	386	*xv	25	378	12	2	2
Trib. Mil. vi. M. Furius Camillus iiii, Ser. Cornelius Maluginensis ii, Q. Servilius Priscus Fidenas vi, &c.	369	368	366	*385	xvi	19	355	25	8	3
Trib. Mil. vi. A. Manlius Capitolinus ii, P. Cornelius Cossus ii, T. Quinctius Capitolinus, &c.	370	369	367	384	*xvii	20	377	Jan. 14	5	1
Trib. Mil. vi. Ser. Cornelius Maluginensis iii, P. Valerius Potitus Poplicola ii, M. Furius Camillus v, &c.	371	370	368	383	xviii	13	355	26	4	3
Trib. Mil. vi. L. Valerius Poplicola iiii, A. Manlius Capitolinus iii, Ser. Sulpicius Rufus iii, &c.	372	371	369	382	*xix	14	377	16	1	1
Trib. Mil. vi. Sp. Papirius Crassus, L. Papirius Crassus, Ser. Cornelius Maluginensis iiii, &c.	373	372	370	*381	xx	7	355	28	8	3
Trib. Mil. vi. M. Furius Camillus vi, A. Postumius Albinus Regillensis, L. Postumius Albinus Regillensis, &c.	374	373	371	380	xxi	8	355	Jan. 17	5	3
Trib. Mil. vi. L. Valerius Poplicola v, L. Valerius Potitus Poplicola iii, L. Menenius Lanatus ii, &c.	375	374	372	379	*xxii	9	377	7	2	1
Trib. Mil. vi. P. Manlius Capitolinus, C. Manlius Capitolinus, L. Iulius Iulus ii, &c.	376	375	373	378	xxiii	2	355	19	1	3
Trib. Mil. vi. Sp. Furius Medullinus, Q. Servilius Priscus Fidenas ii, C. Licinius Calvus, &c.	377	376	374	*377	xxiv	3	355	9	6	3

TABLE I.—CALENDAR OF THE DECEMVIRS.

Nundinal Period I. Cycle IV.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. iv.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Trib. / Mil. / vi. — L. Aemilius Mamercinus v; P. Valerius Potitus Poplicola iiii; C. Veturius Crassus Cicurinus, &c.	378	377	375	377	376	*i	4	377	Dec. 29	3	1
Trib. / Pleb. — L. Sextius Sextinus Lateranus (ii); C. Licinius Calvus Stolo ii	379	378	376		375	ii	27	355	Jan. 10	2	3
Trib. / Pleb. — L. Sextius Sextinus Lateranus iii; C. Licinius Calvus Stolo iii	380	379	377	375	374	*iii	28	378	Dec. 31	7	2
Trib. / Pleb. — L. Sextius Sextinus Lateranus iiii; C. Licinius Calvus Stolo iiii	381	380	378		*373	iv	22	355	Jan. 13	5	3
Trib. / Pleb. — L. Sextius Sextinus Lateranus v; C. Licinius Calvus Stolo v	382	381	379		372	*v	23	377	Jan. 2	2	1
Trib. / Mil. / vi. — L. Furius Medullinus ii; A. Manlius Capitolinus iiii; †C. Valerius Potitus, &c.	383	382	380		371	vi	16	355	14	1	3
Trib. / Mil. / vi. — Q. Servilius Priscus Fidenas iii; C. Veturius Crassus Cicurinus ii; A. Cornelius Cossus, &c.	384	383	381		370	*vii	17	378	4	6	2
Trib. / Mil. / vi. — L. Quinctius Capitolinus; Ser. Cornelius Maluginensis vii; Ser. Sulpicius Prætextatus iiii, &c.	385	384	382		*369	viii	11	355	17	4	3
Dict. / Mag. Eq. — *†M. Furius Camillus iiii; *†L. Aimilius Mamercinus	386	385	383		368	*ix	12	377	Jan. 6	1	1
Trib. / Mil. / vi. — A. Cornelius Cossus ii; M. Cornelius Maluginensis ii; M. Geganius Macerinus, &c.	387	386	384		367	x	5	355	18	8	3
— †L. Aemilius Mamercinus; †L. Sextius Sextinus Lateranus	388	387	385		366	*xi	6	378	8	5	2
L. Genucius Aventinensis; †Q. Servilius Ahala	389	388	386		*365	xii	30	355	21	3	3

TABLE I.—CALENDAR OF THE DECEMVIRS.

Consular Ingress, the Ides of December.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. iv.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
C. Sulpicius Peticus †C. Licinius Calvus	390	389	387	364	*xiii	1	377	Jan. 10	8	1
†L. Aemilius Mamercinus ii †Cn. Genucius Aventinensis	391	390	388	363	xiv	24	355	22	7	3
Q. Servilius Ahala ii †L. Genucius Aventinensis ii	392	391	389	362	*xv	25	378	12	4	2
†C. Licinius Stolo †C. Sulpicius Peticus ii	393	392	390	*361	xvi	19	355	25	2	3
†M. Fabius Ambustus †C. Poetelius Libo Visolus	394	393	391	360	*xvii	20	377	Jan. 14	7	1
†M. Popillius Laenas †Cn. Manlius Capitolinus Imperiossus	395	394	392	359	xviii	13	355	26	6	3
†C. Fabius Ambustus †C. Plautius Proculus	396	395	393	358	*xix	14	377	16	3	1
C. Martius Rutilus Cn. Manlius Capitolinus Imperiossus ii	397	396	394	*357	xx	7	355	28	2	3
M. Fabius Ambustus ii M. Popillius Lænas ii	398	397	395	356	xxi	8	355	Jan. 17	7	3
C. Sulpicius Peticus iii M. Valerius Poplicola	399	398	396	355	*xxii	9	377	7	4	1
M. Fabius Ambustus iii T. Quinctius Pennus Capitolinus Crispinus	400	399	397	354	xxiii	2	355	19	3	3
C. Sulpicius Peticus iiii M. Valerius Poplicola ii	401	400	398	*353	xxiv	3	355	9	8	3

Table I.—Calendar of the Decemvirs.

Nundinal Period II. Cycle I.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. v.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
P. Valerius Poplicola C. Martius Rutilus ii	402	401	399	353	352	*i	4	377	Dec. 29	5	1
C. Sulpicius Peticus v T. Quinctius Cincinnatus Capitolinus	403	402	400		351	ii	27	355	Jan. 10	4	3
M. Popillius Laenas iii L. Cornelius Scipio	404	403	401	351	350	*iii	28	378	Dec. 31	1	2
L. Furius Camillus Appius Claudius Crassus †Inregillensis	405	404	402		*349	iv	22	355	Jan. 13	7	3
†M. Popilius Laenas iiii †M. Valerius Corvus	406	405	403		348	*v	23	377	Jan. 2	4	1
†C. Plautius Hypsaeus †T. Manlius Imperiossus Torquatus	407	406	404		347	vi	16	355	14	3	3
M. Valerius Corvus ii †C. Poetelius Libo Visolus	408	407	405		346	*vii	17	378	4	8	2
M. Fabius Dorso Ser. Sulpicius Camerinus	409	408	406		*345	viii	11	355	17	6	3
C. Martius Rutilus iii T. Manlius Imperiossus Torquatus ii	410	409	407		344	*ix	12	377	Jan. 6	3	1
M. Valerius Corvus iii A. Cornelius Cossus Arvina	411	410	408		343	x	5	355	18	2	3
C. Martius Rutilus iiii Q. Servilius Ahala iiii	412	411	409		342	*xi	6	378	8	7	2
C. Plautius Hypsaeus ii L. Aemilius Mamercinus	413	412	410		*341	xii	30	355	21	5	3

TABLE I.—CALENDAR OF THE DECEMVIRS.

Consular Ingress, the Ides of December.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. v.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact.
T. Manlius Imperiossus Torquatus iii P. Decius Mus	414	413	411	340	*xiii	1	377	Jan. 10	2	1
Tib. Aemilius Mamercinus Q. Publilius Philo	415	414	412	339	xiv	24	355	22	1	3
L. Furius Camillus ii C. Maenius	416	415	413	338	*xv	25	378	12	6	2
C. Sulpicius Longus P. Aelius Paetus	417	416	414	*337	xvi	19	355	25	4	3
L. Papirius Crassus Caeso Duillius	418	417	415	336	*xvii	20	377	Jan. 14	1	1
M. Valerius Corvus iiii M. Atilius Regulus	419	418	416	335	xviii	13	355	26	8	3
T. Veturius Calvinus Sp. Postumius Albinus	420	419	417	334	*xix	14	377	16	5	1
Lucius Papirius Cursor C. Poetilius Libo Visolus	421	420	418	*333	xx	7	355	28	4	3
A. Cornelius Cossus Arvina ii Cn. Domitius Calvinus	422	421	419	332	xxi	8	355	Jan. 17	1	3
M. Claudius Marcellus C. Valerius Potitus Flaccus	423	422	420	331	*xxii	9	377	7	6	1
L. Papirius Crassus ii L. Plautius Venno	424	423	421	330	xxiii	2	355	19	5	3
L. Aemilius Mamercinus Privernas ii Caius Plautius Decianus	425	424	422	*329	xxiv	3	355	9	2	3

Table I.—Calendar of the Decemvirs.

Nundinal Period II. Cycle II.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. vi.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
C. Plautius Proculus P. Cornelius Scapula	426	425	423	329	328	*i	4	377	Dec. 29	7	1
L. Cornelius Lentulus Q. Publilius Philo ii	427	426	424		327	ii	27	355	Jan. 10	6	3
C. Poetilius Libo Visolus ii L. Papirius Mugillanus	428	427	425	327	326	*iii	28	378	Dec. 31	3	2
L. Furius Camillus iii D. Junius Brutus Scaeva	429	428	426		*325	iv	22	355	Jan. 13	1	3
Dict. L. Papirius Cursor Mag. Eq. L. Papirius Crassus	430	429	427		324	*v	23	377	Jan. 2	6	1
C. Sulpicius Longus ii Q. Aulius Cerretanus	431	430	428		323	vi	16	355	14	5	3
Q. Fabius Maximus Rullianus L. Fulvius Curvus	432	431	429		322	*vii	17	378	4	2	2
T. Veturius Calvinus ii Sp. Postumius Albinus ii	433	432	430		*321	viii	11	355	17	8	3
†L. Papirius Cursor ii †Q. Publilius Philo iii	434	433	431		320	*ix	12	377	Jan. 6	5	1
L. Papirius Cursor iii Q. Aulius Cerretanus ii	435	434	432		319	x	5	355	18	4	3
†L. Plautius Venno †M. Foslius Flaccinator	436	435	433		318	*xi	6	378	8	1	2
†Q. Aimilius Barbula †C. Junius Bubulcus Brutus	437	436	434		*317	xii	30	355	21	7	3

TABLE I.—CALENDAR OF THE DECEMVIRS.

Consular Ingress, the Ides of December.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. vi.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
†Sp. Nautius Rutilus †M. Popillius Laenas	438	437	435	316	*xiii	1	377	Jan. 10	4	1
†L. Papirius Cursor iiii †Q. Poblilius Philo iiii	439	438	436	315	xiv	24	355	22	3	3
†M. Poetelius Libo †C. Sulpicius Longus iii	440	439	437	314	*xv	25	378	12	8	2
†L. Papirius Cursor v †C. Junius Bubulcus Brutus ii	441	440	438	*313	xvi	19	355	25	6	3
†M. Valerius Maximus †P. Decius Mus	442	441	439	312	*xvii	20	377	Jan. 14	3	1
†C. Junius Bubulcus Brutus iii †Q. Aimilius Barbula ii	443	442	440	311	xviii	13	355	26	2	3
†Q. Fabius Maximus Rullianus ii †C. Marcius Rutilus (Censorinus)	444	443	441	310	*xix	14	377	16	7	1
Dict. †L. Papirius Cursor ii Mag. Eq. †C. Junius Bubulcus Brutus ii	445	444	442	*309	xx	7	355	28	6	3
†P. Decius Mus ii †Q. Fabius Maximus Rullianus iii	446	445	443	308	xxi	8	355	Jan. 17	3	3
†Appius Claudius Caecus †L. Volumnius Flamma Violensis	447	446	444	307	*xxii	9	377	7	8	1
†Q. Marcius Tremulus †P. Cornelius Arvina	448	447	445	306	xxiii	2	355	19	7	3
L. Postumius Megellus *Tib. Minucius Augurinus	449	448	446	*305	xxiv	3	355	9	4	3

Table I.—Calendar of the Decemvirs.

Nundinal Period II. Cycle III.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B.C.		Cycle. vii.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
†P. Sempronius Sophus †P. Sulpicius Saverrio	450	449	447	305	304	*i	4	377	Dec. 29	1	1
†Ser. Cornelius Lentulus †L. Genucius Aventinensis	451	450	448		303	ii	27	355	Jan. 10	8	3
M. Livius Denter M. Aemilius Paullus	452	451	449	303	302	*iii	28	378	Dec. 31	5	2
*Dict. } †Q. Fabius Max. Rullianus ii *Mag. Eq. } †M. Aimilius Paullus	453	452	450		*301	iv	22	355	Jan. 13	3	3
M. Valerius Corvus v Q. Appuleius Pansa	454	453	451		300	*v	23	377	Jan. 2	8	1
M. Fulvius Paetinus *T. Manlius Torquatus	455	454	452		299	vi	16	355	14	7	3
L. Cornelius Scipio Cn. Fulvius Centumalus	456	455	453		298	*vii	17	378	4	4	2
Q. Fabius Maximus Rullianus iiii P. Decius Mus iii	457	456	454		*297	viii	11	355	17	2	3
†Appius Claudius Caecus ii †L. Volumnius Flamma Violensis ii	458	457	455		296	*ix	12	377	Jan. 6	7	1
Q. Fabius Maximus Rullianus v P. Decius Mus iiii	459	458	456		295	x	5	355	18	6	3
L. Postumius Megellus ii M. Atilius Regulus	460	459	457		294	*xi	6	378	8	3	2
†L. Papirius Cursor Sp. Carvilius Maximus	461	460	458		*293	xii	30	355	21	1	3

TABLE I.—CALENDAR OF THE DECEMVIRS.

Consular Ingress, the Ides of December.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. vii.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Q. Fabius Maximus Gurges D. Junius Brutus Scaeva	462	461	459	292	*xiii	1	377	Jan. 10	6	1
L. Postumius Megellus iii C. Junius Brutus Bubulcus	463	462	460	291	xiv	24	355	22	5	3
P. Cornelius Rufinus M'. Curius Dentatus	464	463	461	290	*xv	25	378	12	2	2
M. Valerius Corvinus vi Q. Caedicius Noctua	465	464	462	*289	xvi	19	355	25	8	3
Q. Marcius Tremulus ii P. Cornelius Arvina ii	466	465	463	288	*xvii	20	377	Jan. 14	5	1
M. Claudius Marcellus C. Nautius Rutilus	467	466	464	287	xviii	13	355	26	4	3
M. Valerius Potitus C. Aelius Paetus	468	467	465	286	*xix	14	377	16	1	1
C. Claudius Canina M. Aemilius Lepidus	469	468	466	*285	xx	7	355	28	8	3
C. Servilius Tucca L. Caecilius Metellus	470	469	467	284	xxi	8	355	Jan. 17	5	3
P. Cornelius Dolabella Cn. Domitius Calvinus	471	470	468	283	*xxii	9	377	7	2	1
C. Fabricius Luscinus Q. Aemilius Papus	472	471	469	282	xxiii	2	355	19	1	3
L. Aemilius Barbula Q. Marcius Philippus	473	472	470	*281	xxiv	3	355	9	6	3

Table I.—Calendar of the Decemvirs.

Nundinal Period II. Cycle IV.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. viii.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
P. Valerius Laevinus Tib. Coruncanius	474	473	471	281	280	*i	4	377	Dec. 29	3	1
P. Sulpicius Saberrio P. Decius Mus.	475	474	472		279	ii	27	355	Jan. 10	2	3
C. Fabricius Luscinus ii Q. Aemilius Papus ii	476	475	473	279	278	*iii	28	378	Dec. 31	7	2
P. Cornelius Rufinus ii C. Junius Brutus Bubulcus ii	477	476	474		*277	iv	22	355	Jan. 13	5	3
Q. Fabius (Maximus) Gurges ii C. Genucius Clepsina	478	477	475		276	*v	23	377	Jan. 2	2	1
M'. Curius Dentatus ii L. Cornelius Lentulus (Caudinus)	479	478	476		275	vi	16	355	14	1	3
M'. Curius Dentatus iii Serv. Cornelius Merenda	480	479	477		274	*vii	17	378	4	6	2
C. Fabius Dorso Licinus C. Claudius Canina ii	481	480	478		*273	viii	11	355	17	4	3
L. Papirius Cursor ii Sp. Carvilius Maximus ii	482	481	479		272	*ix	12	377	Jan. 6	1	1
C. Quinctius Claudus L. Genucius Clepsina	483	482	480		271	x	5	355	18	8	3
C. Genucius Clepsina Cn. Cornelius Blasio	484	483	481		270	*xi	6	378	8	5	2
Q. Ogulnius Gallus C. Fabius Pictor	485	484	482		*269	xii	30	355	21	3	3

TABLE I.—CALENDAR OF THE DECEMVIRS.

Consular Ingress, the Ides of March.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. viii.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
P. Sempronius Sophus Appius Claudius Rufus	486	485	483	268	*xiii	1	377	Jan. 10	8	1
M. Atilius Regulus L. Iulius Libo	487	486	484	267	xiv	24	355	22	7	3
N. Fabius Pictor D. Junius Pera	488	487	485	266	*xv	25	378	12	4	2
Q. Fabius Maximus Gurges iii L. Mamilius Vitulus	489	488	486	*265	xvi	19	355	25	2	3
Appius Claudius Caudex M. Fulvius Flaccus	490	489	487	264	*xvii	20	377	Jan. 14	7	1
M'. Valerius Maximus †(Messalla) M'. Otacilius Crassus	491	490	488	263	xviii	13	355	26	6	3
L. Postumius Megellus Q. Mamilius Vitulus	492	491	489	262	*xix	14	377	16	3	1
L. Valerius Flaccus T. Otacilius Crassus	493	492	490	*261	xx	7	355	28	2	3
Cn. Cornelius Scipio Asina C. Duilius	494	493	491	260	xxi	8	355	Jan. 17	7	3
L. Cornelius Scipio C. Aquillius Florus	495	494	492	259	*xxii	9	377	7	4	1
A. Atilius Calatinus C. Sulpicius Paterculus	496	495	493	258	xxiii	2	355	19	3	3
C. Atilius Regulus Cn. Cornelius Blasio ii	497	496	494	*257	xxiv	3	355	9	8	3

Table I.—Calendar of the Decemvirs.

Nundinal Period III. Cycle I.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. ix.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nun-
L. Manlius Vulso Longus *Q. Caedicius	498	497	495	257	256	*i	4	377	Dec. 29	5	1
Ser. Fulvius Paetinus Nobilior M. †Aimilius Paullus	499	498	496		255	ii	27	355	Jan. 10	4	3
Cn. Cornelius Scipio Asina ii A. Atilius Calatinus ii	500	499	497	255	254	*iii	28	378	Dec. 31	1	2
Cn. Servilius Caepio C. Sempronius Blaesus	501	500	498		*253	iv	22	355	Jan. 13	7	3
C. Aurelius Cotta P. Servilius Geminus	502	501	499		252	*v	23	377	Jan. 2	4	1
L. Caecilius Metellus C. Furius Pacilus	503	502	500		251	vi	16	355	14	3	3
C. Atilius Regulus ii L. Manlius Vulso ii	504	503	501		250	*vii	17	378	4	8	2
P. Claudius Pulcher L. Iunius Pullus	505	504	502		*249	viii	11	355	17	6	3
C. Aurelius Cotta ii P. Servilius Geminus ii	506	505	503		248	*ix	12	377	Jan. 6	3	1
L. Caecilius Metellus ii N. Fabius Buteo	507	506	504		247	x	5	355	18	2	3
M'. Otacilius Crassus ii M. Fabius Licinus	508	507	505		246	*xi	6	378	8	7	2
M. Fabius Buteo C. Atilius Bulbus	509	508	506		*245	xii	30	355	21	5	3

TABLE I.—CALENDAR OF THE DECEMVIRS.

Consular Ingress, the Ides of March.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. ix.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
A. Manlius Torquatus Atticus C. Sempronius Blaesus ii	510	509	507	244	*xiii	1	377	Jan. 10	2	1
C. Fundanius Fundulus C. Sulpicius Gallus	511	510	508	243	xiv	24	355	22	1	3
C. Lutatius Catulus A. Postumius Albinus	512	511	509	242	*xv	25	378	12	6	2
A. Manlius Torquatus Atticus ii Q. Lutatius Cerco	513	512	510	*241	xvi	19	355	25	4	3
C. Claudius Centho M. Sempronius Tuditanus	514	513	511	240	*xvii	20	377	Jan. 14	1	1
C. Mamilius Turrinus Q. Valerius Falto	515	514	512	239	xviii	13	355	26	8	3
Tib. Sempronius Gracchus P. Valerius Falto	516	515	513	238	*xix	14	377	16	5	1
L. Cornelius Lentulus Caudinus Q. Fulvius Flaccus	517	516	514	*237	xx	7	355	28	4	3
P. Cornelius Lentulus Caudinus C. Licinius Varus	518	517	515	236	xxi	8	355	Jan. 17	1	3
T. Manlius Torquatus C. Atilius Bulbus ii	519	518	516	235	*xxii	9	377	7	6	1
L. Postumius Albinus Sp. Carvilius Maximus	520	519	517	234	xxiii	2	355	19	5	3
Q. Fabius Maxumus Verrucossus M'. Pomponius Matho	521	520	518	*233	xxiv	3	355	9	2	3

Table I.—Calendar of the Decemvirs.

Nundinal Period III. Cycle II.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. x.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
M. †Aimilius Lepidus M. Poblicius Malleolus	522	521	519	233	232	*i	4	377	Dec. 29	7	1
M. Pomponius Matho C. Papirius Maso	523	522	520		231	ii	27	355	Jan. 10	6	3
M. †Aimilius Barbula M. Iunius Pera	524	523	521	231	230	*iii	28	378	Dec. 31	3	2
L. Postumius Albinus ii Cn. Fulvius Centumalus	525	524	522		*229	iv	22	355	Jan. 13	1	3
Sp. Carvilius Maximus ii Q. Fabius Maximus Verrucossus ii	526	525	523		228	*v	23	377	Jan. 2	6	1
P. Valerius Flaccus M. Atilius Regulus	527	526	524		227	vi	16	355	14	5	3
M. Valerius Messalla L. Apustius Fullo	528	527	525		226	*vii	17	378	4	2	2
L. †Aimilius Papus C. Atilius Regulus	529	528	526		*225	viii	11	355	17	8	3
T. Manlius Torquatus ii Q. Fulvius Flaccus ii	530	529	527		224	*ix	12	377	Jan. 6	5	1
C. Flaminius P. Furius Philus	531	530	528		223	x	5	355	18	4	3
Cn. Cornelius Scipio Calvus M. Claudius Marcellus	532	531	529		222	*xi	6	378	8	1	2
P. Cornelius Scipio Asina M. Minucius Rufus	533	532	530		*221	xii	30	355	21	7	3

TABLE I.—CALENDAR OF THE DECEMVIRS.

Consular Ingress, the Ides of March.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. x.	Lunar Character.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
*L. Veturius Philo *C. Lutatius Catulus	534	533	531	220	*xiii	1	377	Jan. 10	4	1
M. Livius Salinator L. Aemilius Paullus	535	534	532	219	xiv	24	355	22	3	3
P. Cornelius Scipio Tib. Sempronius Longus	536	535	533	218	*xv	25	378	12	8	2
Cn. Servilius Geminus *C. Flaminius ii	537	536	534	*217	xvi	19	355	25	6	3
C. Terentius Varro *L. Aemilius Paullus ii	538	537	535	216	*xvii	20	377	Jan. 14	3	1
*C. Postumius Albinus iii Tib. Sempronius Gracchus	539	538	536	215	xviii	13	355	26	2	3
Q. Fabius Maximus Verrucosus iiii M. Claudius Marcellus iii	540	539	537	214	*xix	14	377	16	7	1
Q. Fabius Maximus Tib. Sempronius Gracchus ii	541	540	538	*213	xx	7	355	28	6	3
Q. Fulvius Flaccus iii Appius Claudius Pulcher	542	541	539	212	xxi	8	355	Jan. 17	3	3
Cn. Fulvius Centumalus P. Sulpicius Galba	543	542	540	211	*xxii	9	377	7	8	1
M. Valerius Lævinus M. Claudius Marcellus iiii	544	543	541	210	xxiii	2	355	19	7	3
Q. Fabius Maximus Verrucosus v Q. Fulvius Flaccus iv	545	544	542	*209	xxiv	3	355	9	4	3

Table I.—Irregular Calendar.

Cycle I.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. i.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
M. Claudius Marcellus v T. Quinctius Crispinus	546	545	543	209	208	*i	377	Dec. 29	1	1
C. Claudius Nero M. Livius Salinator ii	547	546	544		207	ii	356	Jan. 10	8	4
Q. Caecilius Metellus L. Veturius Philo	548	547	545		206	iii	356	1	4	4
P. Cornelius Scipio (Africanus) P. Licinius Crassus Dives	549	548	546	206	*205	iv	356	Dec. 23	8	4
M. Cornelius Cethegus P. Sempronius Tuditanus	550	549	547	205	204	v	356	Dec. 13	4	4
Cn. Servilius Caepio C. Servilius	551	550	548	204	203	vi	356	4	8	4
Tib. Claudius Nero M. Servilius (Pulex) Geminus	552	551	549	203	202	vii	356	Nov. 25	4	4
Cn. Cornelius Lentulus P. †Ailius Paetus	553	552	550	202	*201	viii	356	16	8	4
P. Sulpicius Galba Maximus ii C. Aurelius Cotta	554	553	551	201	200	ix	356	Nov. 6	4	4
L. Cornelius Lentulus P. Villius Tappulus	555	554	552	200	199	x	354	Oct. 28	8	2
T. Quinctius *Flamininus* Sex. †Ailius †Paitus Catus	556	555	553	199	198	xi	355	17	6	3
C. Cornelius Cethegus Q. Minucius Rufus	557	556	554	198	*197	xii	355	7	3	3

TABLE I.—IRREGULAR CALENDAR.

Consular Ingress, the Ides of March.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. i.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
L. Furius Purpureo M. Claudius Marcellus	558	557	555	197	196	xiii	354	Sep. 26	8	2
M. Porcius Cato L. Valerius Flaccus	559	558	556	196	195	xiv	355	15	6	3
P. Cornelius Scipio Africanus ii Tib. Sempronius Longus	560	559	557	195	194	xv	355	5	3	3
L. Cornelius Merula Q. Minucius Thermus	561	560	558	194	*193	xvi	354	Aug. 26	8	2
L. Quinctius Flamininus Cn. Domitius Ahenobarbus	562	561	559	193	192	xvii	355	Aug. 14	6	3
M'. Acilius Glabrio P. Cornelius Scipio Nasica	563	562	560	192	191	*xviii	377	4	3	1
L. Cornelius Scipio (Asiaticus) C. Laelius	564	563	561	191	190	*xix	378	16	2	2
Cn. Manlius Vulso M. Fulvius *Nobilior*	565	564	562	190	*189	xx	355	29	8	3
C. Livius *Salinator* M. Valerius *Messalla*	566	565	563	189	188	*xxi	378	Aug. 18	5	2
M. †Aimilius *Lepidus* C. Flaminius	567	566	564	188	187	*xxii	377	31	3	1
Sp. Postumius Albinus Q. Marcius Philippus	568	567	565	187	186	xxiii	355	Sep. 12	2	3
Appius Claudius Pulcher M. Sempronius Tuditanus	569	568	566	186	*185	*xxiv	378	2	7	2

Table I.—Irregular Calendar.

Cycle II.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. ii.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
P. Claudius Pulcher L. Porcius Licinus	570	569	567	185	184	i	355	Sep. 14	5	3
Q. Fabius Labeo M. Claudius Marcellus	571	570	568	184	183	*ii	378	4	2	2
L. †Aimilius Paullus Cn. Baebius Tamphilus	572	571	569	183	182	*iii	377	17	8	1
P. Cornelius Cethegus M. Baebius Tamphilus	573	572	570	182	*181	*iv	378	29	7	2
A. Postumius Albinus *C. Calpurnius Piso	574	573	571	181	180	v	355	Oct. 11	5	3
L. Manlius Acidinus Fulvianus Q. Fulvius Flaccus	575	574	572	180	179	*vi	378	1	2	2
M. Iunius Brutus A. Manlius Vulso	576	575	573	179	178	vii	355	14	8	3
C. Claudius Pulcher Tib. Sempronius Gracchus	577	576	574	178	*177	*viii	377	4	5	1
*Cn. Cornelius Scipio †Hispallus Q. Petilius Spurinus	578	577	575	177	176	ix	356	Oct. 15	4	4
P. Mucius Scaevula M. †Aimilius Lepidus ii	579	578	576	176	175	*x	378	6	8	2
Sp. Postumius Albinus †Paullulus Q. Mucius Scaevula	580	579	577	175	174	xi	355	19	6	3
L. Postumius Albinus M. Popillius Laenas	581	580	578	174	*173	*xii	377	9	3	1

TABLE I.—IRREGULAR CALENDAR.

Consular Ingress, the Ides of March.

Sub Consulibus, &c.	Urbis Conditæ.			B. C.		Cycle.	Days.	Kalendæ Januariæ	Nundinal Character.	Nundinal Epact
	Varr.	Cap.	Pol.			ii.				
C. Popillius Laenas P. †Ailius Ligus	582	581	579	173	172	xiii	356	Oct. 20	2	4
P. Licinius Crassus C. Cassius Longinus	583	582	580	172	171	xiv	355	11	6	3
A. Hostilius Mancinus A. Atilius Serranus	584	583	581	171	170	xv	355	1	3	3
Q. Marcius Philippus ii Cn. Servilius Caepio	585	584	582	170	*169	*xvi	377	Sep. 21	8	1
L. †Aimilius Paullus ii C. Licinius Crassus	586	585	583	169	168	*xvii	378	Oct. 2	7	2
Q. †Ailius †Paitus M. Iunius Pennus	587	586	584	168	167	xviii	354	15	5	2
C. Sulpicius Gallus M. Claudius Marcellus	588	587	585	167	166	*xix	377	4	3	1
T. Manlius Torquatus Cn. Octavius	589	588	586	166	*165	*xx	378	16	2	2
A. Manlius Torquatus Q. Cassius Longinus	590	589	587	165	164	*xxi	377	Oct. 28	8	1
Tib. Sempronius Gracchus ii M'. Juventius Thalna	591	590	588	164	163	*xxii	377	Nov. 9	7	1
*P. Cornelius Scipio Nasica *C. Marcius Figulus	592	591	589	163	162	*xxiii	377	21	6	1
M. Valerius Messalla C. Fannius Strabo	593	592	590	162	*161	xxiv	354	Dec. 3	5	2

Table I.—Irregular Calendar.

Cycle III.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. iii.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
L. Anicius Gallus M. Cornelius Cethegus	594	593	591	161	160	*i	377	Nov. 21	3	1
Cn. Cornelius Dolabella M. Fulvius Nobilior	595	594	592	160	159	ii	354	Dec. 3	2	2
M. †Aimilius Lepidus C. Popilius Laenas ii	596	595	593	159	158	*iii	377	Nov. 22	8	1
Sex. Iulius Caesar L. Aurelius Orestes	597	596	594	158	*157	*iv	377	Dec. 4	7	1
L. Cornelius Lentulus Lupus C. Marcius Figulus ii	598	597	595	157	156	*v	377	Dec. 15	6	1
P. Cornelius Scipio Nasica ii M. Claudius Marcellus ii	599	598	596	156	155	*vi	377	27	5	1
Q. Opimius *L. Postumius Albinus	600	599	597		154	vii	354	Jan. 8	4	2
Q. Fulvius Nobilior T. Annius Luscus	601	600	598	154	*153	*viii	378	Dec. 28	2	2
M. Claudius Marcellus iii L. Valerius Flaccus	602	601	599		152	*ix	377	Jan. 9	8	1
L. Licinius Lucullus A. Postumius Albinus	603	602	600		151	x	355	21	7	3
T. Quinctius Flamininus M'. Acilius Balbus	604	603	601		150	*xi	378	11	4	2
L. Marcius Censorinus M'. Manilius	605	604	602		*149	xii	355	24	2	3

TABLE I.—IRREGULAR CALENDAR.

Consular Ingress, the Kalends of January.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. iii.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Sp. Postumius Albinus Magnus L. Calpurnius Piso Caesoninus	606	605	603	148	*xiii	378	Jan. 13	7	2
P. Cornelius Scipio Africanus †Aimilianus C. Livius Drusus	607	606	604	147	xiv	355	26	5	3
Cn. Cornelius Lentulus L. Mummius	608	607	605	146	xv	355	16	2	3
Q. Fabius Maximus †Aimilianus L. Hostilius Mancinus	609	608	606	*145	*xvi	378	6	7	2
Ser. Sulpicius Galba L. Aurelius Cotta	610	609	607	144	xvii	355	Jan. 18	5	3
Appius Claudius Pulcher Q. Caecilius Metellus Macedonicus	611	610	608	143	*xviii	378	8	2	2
L. Caecilius Metellus Calvus Q. Fabius Maximus Servilianus	612	611	609	142	xix	355	21	8	3
Cn. Servilius Caepio Q. Pompeius Rufus	613	612	610	*141	*xx	378	11	5	2
C. Laelius Sapiens Q. Servilius Caepio	614	613	611	140	xxi	355	Jan. 23	3	3
Cn. Calpurnius Piso M. Popillius Laenas	615	614	612	139	*xxii	378	13	8	2
P. Cornelius Scipio Nasica (Serapio) D. Iunius Brutus (Callaïcus)	616	615	613	138	xxiii	355	26	6	3
M. Aemilius Lepidus Porcina C. Hostilius Mancinus	617	616	614	*137	xxiv	355	16	3	3

Table I.—Irregular Calendar.

Cycle IV.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. iv.	Days.	Kalendæ Januariæ	Nundinal Character.	Nundinal Epact
P. Furius Philus Sex. Atilius Serranus	618	617	615	136	*i	378	Jan. 5	8	2
Ser. Fulvius Flaccus Q. Calpurnius Piso	619	618	616	135	ii	355	18	6	3
P. Cornelius Scipio African. Æmilian. ii C. Fulvius Flaccus	620	619	617	134	iii	355	8	3	3
P. Mucius Scaevula L. Calpurnius Piso Frugi	621	620	618	134 *133	iv	355	Dec. 29	8	3
P. Popillius Laenas P. Rupilius	622	621	619	133 132	*v	378	Dec. 18	5	2
P. Licinius Crassus Mucianus L. Valerius Flaccus	623	622	620	132 131	*vi	377	31	3	1
C. Claudius Pulcher M. Perperna	624	623	621	130	vii	355	Jan. 12	2	3
C. Sempronius Tuditanus M'. Aquillius	625	624	622	*129	*viii	378	2	7	2
Cn. Octavius T. Annius Rufus	626	625	623	128	ix	355	Jan. 14	5	3
L. Cassius Longinus L. Cornelius Cinna	627	626	624	127	*x	378	4	2	2
M. Aemilius Lepidus L. Aurelius Orestes	628	627	625	126	xi	355	17	8	3
M. Plautius Hypsaeus M. Fulvius Flaccus	629	628	626	*125	*xii	378	7	5	2

TABLE I.—IRREGULAR CALENDAR.

Consular Ingress, the Kalends of January.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. iv.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
C. Cassius Longinus C. Sextius Calvinus	630	629	627		124	xiii	355	Jan. 19	3	3
Q. Cæcilius Metellus (Baliaricus) T. Quinctius Flamininus	631	630	628		123	xiv	355	9	8	3
Cn. Domitius Ahenobarbus C. Fannius Strabo	632	631	629	123	122	xv	355	Dec. 30	5	3
Q. Fabius Maximus (Allobrogicus) L. Opimius	633	632	630	122	*121	xvi	355	20	2	3
P. Manlius C. Papirius Carbo	634	633	631	121	120	*xvii	378	Dec. 9	7	2
L. Cæcilius Metellus (Delmaticus) L. Aurelius Cotta	635	634	632	120	119	*xviii	378	22	5	2
*M. Porcius Cato Q. Marcius Rex	636	635	633		118	xix	355	Jan. 4	3	3
L. Caecilius Metellus Q. Mucius Scaevula	637	636	634	118	*117	xx	355	Dec. 25	8	3
C. Licinius Geta Q. Fabius Maximus (Eburnus)	638	637	635	117	116	*xxi	378	Dec. 14	5	2
M. Aemilius Scaurus M. Caecilius Metellus	639	638	636	116	115	xxii	355	27	3	3
M'. Acilius Balbus C. Porcius Cato	640	639	637	115	114	*xxiii	378	17	8	2
C. Caecilius Metellus Caprarius Cn. Papirius Carbo	641	640	638	114	*113	xxiv	355	30	6	3

Table I.—Irregular Calendar.

Cycle V.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. v.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
M. Livius Drusus L. Calpurnius Piso (Caesoninus)	642	641	639	113	112	*i	377	Dec. 19	3	1
P. Cornelius Scipio Nasica L. Calpurnius Piso Bestia	643	642	640	112	111	ii	355	31	2	3
M. Minucius Rufus Sp. Postumius Albinus	644	643	641	111	110	iii	355	21	7	3
Q. Caecilius Metellus (Numidicus) M. Junius Silanus	645	644	642	110	*109	*iv	378	11	4	2
Ser. Sulpicius Galba Suff. M. Aurelius Scaurus	646	645	643	109	108	*v	378	Dec. 23	2	2
*L. Cassius Longinus C. Marius	647	646	644		107	vi	355	Jan. 5	8	3
C. Atilius Serranus Q. Servilius Caepio	648	647	645	107	106	vii	355	Dec. 26	5	3
P. Rutilius Rufus C. Manílius	649	648	646	106	*105	viii	355	16	2	3
C. Marius ii C. Flavius Fimbria	650	649	647	105	104	*ix	378	Dec. 5	7	2
C. Marius iii L. Aurelius Orestes	651	650	648	104	103	*x	378	18	5	2
C. Marius iiii Q. Lutatius Catulus	652	651	649	103	102	*xi	377	31	3	1
C. Marius v M'. Aquillius	653	652	650		*101	*xii	378	Jan. 12	2	2

TABLE I.—IRREGULAR CALENDAR.

Consular Ingress, the Kalends of January.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. v.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
C. Marius vi L. Valerius Flaccus	654	653	651		100	xiii	356	Jan. 24	8	4
M. Antonius A. Postumius Albinus	655	654	652		99	xiv	356	15	4	4
Q. Caecilius Metellus Nepos T. Didius	656	655	653		98	xv	356	6	8	4
Cn. Cornelius Lentulus P. Licinius Crassus	657	656	654	98	*97	xvi	354	Dec. 28	4	2
Cn. Domitius Ahenobarbus C. Cassius Longinus	658	657	655	97	96	xvii	355	Dec. 16	2	3
L. Licinius Crassus Q. Mucius Scaevula	659	658	656	96	95	*xviii	377	6	7	1
C. Coelius Caldus L. Domitius Ahenobarbus	660	659	657	95	94	xix	355	18	6	3
C. Valerius Flaccus M. Herennius	661	660	658	94	*93	*xx	377	8	3	1
C. Claudius Pulcher M. Perperna	662	661	659	93	92	xxi	355	Dec. 19	2	3
L. Marcius Philippus Sex. Iulius Caesar	663	662	660	92	91	xxii	355	9	7	3
L. Iulius Caesar P. Rutilius Lupus	664	663	661	91	90	*xxiii	378	Nov. 29	4	2
Cn. Pompeius Strabo L. Porcius Cato	665	664	662	90	*89	xxiv	355	Dec. 12	2	3

Table I.—Irregular Calendar.

Cycle VI.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Cycle. vi.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
L. Cornelius Sulla (Felix) Q. Pompeius Rufus	666	665	663	89	88	*i	378	Dec. 1	7	2
Cn. Octavius *L. Cornelius Cinna	667	666	664	88	87	ii	355	14	5	3
L. Cornelius Cinna ii *C. Marius vii	668	667	665	87	86	*iii	378	4	2	2
L. Cornelius Cinna iii Cn. Papirius Carbo	669	668	666	86	*85	*iv	377	17	8	1
Cn. Papirius Carbo ii L. Cornelius Cinna iiii	670	669	667	85	84	v	355	Dec. 28	7	3
L. Cornelius Scipio Asiaticus C. Norbanus	671	670	668	84	83	*vi	378	18	4	2
C. Marius Cn. Papirius Carbo iii	672	671	669	83	82	vii	355	31	2	3
M. Tullius Decula Cn. Cornelius Dolabella	673	672	670	82	*81	*viii	378	21	7	2
L. Cornelius Sulla Felix ii Q. Caecilius Metellus Pius	674	673	671		80	*ix	378	Jan. 2	5	2
P. Servilius Vatia (Isauricus) Appius Claudius Pulcher	675	674	672		79	*x	378	15	3	2
M. †Aimilius Lepidus Q. Lutatius Catulus	676	675	673		78	*xi	378	28	1	2
D. Iunius Brutus M. †Aimilius Mamercus Lepidus Livianus	677	676	674		*77	xii	355	Feb. 10	7	3

TABLE I.—IRREGULAR CALENDAR.

Consular Ingress, the Kalends of January.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. vi.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Cn. Octavius C. Scribonius Curio	678	677	675	76	*xiii	378	Jan. 30	4	2
L. Octavius C. Aurelius Cotta	679	678	676	75	xiv	355	Feb. 12	2	3
L. Licinius Lucullus M. Aurelius Cotta	680	679	677	74	*xv	378	2	7	2
M. Terentius Varro Lucullus C. Cassius	681	680	678	*73	xvi	355	15	5	3
L. Gellius Poplicola Cn. Cornelius Lentulus Clodianus	682	681	679	72	*xvii	378	Feb. 4	2	2
P. Cornelius Lentulus Cn. Aufidius Orestes	683	682	680	71	*xviii	378	17	8	2
Cn. Pompeius Magnus M. Licinius Crassus	684	683	681	70	xix	355	Mar. 2	6	3
Q. Hortensius Q. Caecilius Metellus (Creticus)	685	684	682	*69	*xx	377	Feb. 20	3	1
L. Caecilius Metellus Q. Marcius Rex	686	685	683	68	xxi	355	Mar. 3	2	3
C. Calpurnius Piso M'. Acilius Glabrio	687	686	684	67	*xxii	378	Feb. 21	7	2
M. Aemilius Lepidus L. Volcatius Tullus	688	687	685	66	xxiii	355	Mar. 6	5	3
L. Aurelius Cotta L. Manlius Torquatus	689	688	686	*65	*xxiv	378	Feb. 24	2	2

Table I.—Irregular Calendar.

Cycle VII.

Sub Consulibus, &c.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.	Cycle. vii.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact.
L. Julius Cæsar C. Marcius Figulus	690	689	687	64	i	355	Mar. 8	8	3
M. Tullius Cicero C. Antonius	691	690	688	63	*ii	378	Feb. 26	5	2
D. Iunius Silanus L. Licinius Murena	692	691	689	62	iii	355	Mar. 11	3	3
M. Pupius Piso Calpurnianus M. Valerius Messalla	693	692	690	*61	iv	355	Feb. 29	8	3
L. Afranius Q. Caecilius Metellus Celer	694	693	691	60	v	354	Feb. 18	5	2
C. Iulius Caesar M. Calpurnius Bibulus	695	694	692	59	vi	355	7	3	3
L. Calpurnius Piso Caesoninus A. Gabinius	696	695	693	58	vii	354	Jan. 28	8	2
P. Cornelius Lentulus Spinther Q. Caecilius Metellus Nepos	697	696	694	*57	viii	355	17	6	3
Cn. Cornelius Lentulus Marcellinus L. Marcius Philippus	698	697	695	56	ix	355	Jan. 6	3	3
Cn. Pompeius Magnus ii M. Licinius Crassus ii	699	698	696	56 55	x	354	Dec. 27	8	2
L. Domitius Ahenobarbus Appius Claudius Pulcher	700	699	697	55 54	xi	354	16	6	2
Cn. Domitius Calvinus M. Valerius Messalla	701	700	698	54 *53	xii	355	5	4	3

TABLE I.—IRREGULAR CALENDAR.

Consular Ingress, the Kalends of January.

Sub Consulibus, &c.	Urbis Conditæ.			B. C.		Cycle.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
	Varr.	Cap.	Pol.			viii.				
Cn. Pompeius Magnus iii *Ex Kal. Sext.* Q. Caecilius Metellus Pius Scipio	702	701	699	53	52	*xiii	377	Nov. 24	1	1
Ser. Sulpicius Rufus M. Claudius Marcellus	703	702	700	52	51	xiv	354	Dec. 6	8	2
L. Aemilius Paullus C. Claudius Marcellus	704	703	701	51	50	xv	354	Nov. 25	6	2
C. Claudius Marcellus L. Cornelius Lentulus Crus	705	704	702	50	*49	xvi	354	14	4	2
C. Iulius Caesar ii P. Servilius Vatia Isauricus	706	705	703	49	48	xvii	354	Nov. 2	2	2
Dic. ii. *C. Iulius Caesar Mag. Eq. *M. Antonius	707	706	704	48	47	xviii	354	Oct. 22	8	2
C. Iulius Caesar iii M. †Aimilius Lepidus	708	707	705	47	46	*xix	445	14	6	5
*C. Iulius Caesar iv sine collega	709	708	706	46	*45	xx	366	Dec. 30	1	6

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ.			B. C.		Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
	Varr.	Cap.	Pol.						
*C. Iulius Caesar iv sine conlega	709	708	706	46	*45	366	Dec. 30	1	6
*C. Julius Caesar v Mag. Eq. M. †Aimilius Lepidus	710	709	707	45	44	365	Dec. 30	3	5
*C. Vibius Pansa *A. Hirtius	711	710	708	44	43	366	30	6	6
M. Aemilius Lepidus ii L. Munatius Plancus	712	711	709	43	42	365	Dec. 31	8	5
P. Servilius Vatia Isauricus ii L. Antonius Pietas	713	712	710	42	*41	365	31	3	5
*Cn. Domitius Calvinus ii *C. Asinius Pollio	714	713	711	41	40	366	Dec. 30	6	6
L. Marcius Censorinus C. Calvisius Calvinus	715	714	712	40	39	365	Dec. 31	8	5
Appius Claudius Pulcher C. Norbanus Flaccus	716	715	713	39	38	365	31	3	5
M. Agrippa *L. Caninius Gallus	717	716	714	38	*37	366	31	6	6
*L. Gellius Poplicola *M. Cocceius Nerva	718	717	715	37	36	365	Dec. 31	8	5
L. Cornificius Sex. Pompeius	719	718	716	36	35	365	31	3	5
*L. Scribonius Libo *M. Antonius ii	720	719	717	35	34	366	31	6	6
*C. Caesar ii *L. Volcatius Tullus	721	720	718		*33	365	Jan. 1	8	5

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
*Cn. Domitius Ahenobarbus *C. Sosius	722	721	719	33	32	365	Dec. 31	3	5
*C. Caesar iii *M. Valerius Messalla Corvinus	723	722	720	32	31	366	31	6	6
*C. Caesar iv *M. Licinius Crassus	724	723	721		30	365	Jan. 1	8	5
*C. Caesar v *Sextus Appuleius	725	724	722		*29	365	1	3	5
C. Caesar vi M. Agrippa ii	726	725	723	29	28	366	Dec. 31	6	6
C. Caesar (Augustus) vii M. Agrippa iii	727	726	724		27	365	Jan. 1	8	5
C. Caesar Augustus viii T. Statilius Taurus	728	727	725		26	365	1	3	5
C. Caesar Augustus ix M. Iunius Silanus	729	728	726		*25	366	1	6	6
C. Caesar Augustus x C. Norbanus Flaccus	730	729	727		24	365	Jan. 1	8	5
*C. Caesar Augustus xi *A. Terentius Varro Murena	731	730	728		23	365	1	3	5
M. Claudius Marcellus L. Arruntius	732	731	729		22	366	1	6	6
M. Lollius Q. Aemilius Lepidus	733	732	730		*21	365	Jan. 2	8	5

TABLE I.—JULIAN CALENDAR.

At Rome.

Consules.	Urbis Conditæ.			B. C.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
	Varr.	Cap.	Pol.					
M. Appuleius P. Silius Nerva	734	733	731	20	365	Jan. 1	3	5
*C. Sentius Saturninus *Q. Lucretius	735	734	732	19	366	1	6	6
P. Cornelius Lentulus Cn. Cornelius Lentulus	736	735	733	18	365	Jan. 2	8	5
C. Furnius C. Iunius Silanus	737	736	734	*17	365	2	3	5
*L. Domitius Ahenobarbus *P. Cornelius Scipio	738	737	735	16	366	Jan. 1	6	6
M. Livius Drusus Libo L. Calpurnius Piso	739	738	736	15	365	Jan. 2	8	5
M. Licinius Crassus Cn. Cornelius Lentulus Augur	740	739	737	14	365	2	3	5
Tib. Claudius Nero P. Quinctilius Varus	741	740	738	*13	366	2	6	6
*M. Valerius Messalla P. Sulpicius Quirinus	742	741	739	12	365	Jan. 2	8	5
Q. Aelius Tubero Paullus Fabius Maximus	743	742	740	11	365	2	3	5
Iulus Antonius Q. Fabius Maximus Africanus	744	743	741	10	366	2	6	6
Nero Claudius Drusus T. Quinctius Crispinus Volcanus	745	744	742	*9	365	Jan. 3	8	5

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	B. C.		Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
C. Marcius Censorinus C. Asinius Gallus	746	745	743		8	365	Jan. 2	3	5
Tib. Claudius Nero ii Cn. Calpurnius Piso	747	746	744		7	365	2	6	5
*C. Antistius Veter *D. Laelius Balbus	748	747	745		6	365	2	1	5
*C. Caesar Augustus xii L. Cornelius Sulla	749	748	746		*5	365	2	4	5
C. Calvisius Sabinus L. Passienus Rufus	750	749	747		4	365	Jan. 1	7	5
Cn. Cornelius Lentulus M. Valerius Messallinus	751	750	748		3	365	1	2	5
*C. Caesar Augustus xiii *M. Plautius Sylvanus	752	751	749		2	365	1	5	5
Cn. Cornelius Lentulus Cossus L. Calpurnius Piso	753	752	750		*1	365	1	8	5
				B. C.	A. D.				
C. Caesar L. Aemilius Paullus	754	753	751	1	1	365	Dec. 31	3	5
				A. D.					
P. Vinicius P. Alphinius Varus	755	754	752	1	2	365	31	6	5
L. Aelius Lamia M. Servilius	756	755	753	2	3	365	31	1	5
Sex. Aelius Catus C. Sentius Saturninus	757	756	754	3	*4	365	31	4	5

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.		Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Cn. Cornelius Cinna Magnus L. Valerius Messalla Valesus	758	757	755	4	5	365	Dec. 30	7	5
*M. Aemilius Lepidus *L. Arruntius	759	758	756	5	6	365	30	2	5
*Q. Caecilius Metellus Creticus *A. Licinius Nerva Silanus	760	759	757	6	7	365	30	5	5
*M. Furius Camillus *Sextus Nonius Quinctilianus	761	760	758	7	*8	366	30	8	6
*C. Poppaeus Sabinus *Q. Sulpicius Camerinus	762	761	759	8	9	365	Dec. 30	2	5½
*P. Cornelius Dolabella *C. Iunius Silanus	763	762	760	9	10	365	30	5	5
*M. †Aimilius Lepidus T. Statilius Taurus	764	763	761	10	11	365	30	8	5
Germanicus Caesar *C. Fonteius Capito	765	764	762	11	*12	366	30	3	6
C. Silius L. Munatius Plancus	766	765	763	12	13	365	Dec. 30	5	5
Sextus Pompeius Sextus Appuleius	767	766	764	13	14	365	30	8	5
Drusus Cæsar C. Norbanus Flaccus	768	767	765	14	15	365	30	3	5
T. Statilius Sisenna Taurus *L. Scribonius Libo	769	768	766	15	*16	366	30	6	6

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.		Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
C. Caecilius Rufus L. Pomponius Flaccus	770	769	767	16	17	365	Dec. 30	8	5
*Tib. Caesar Augustus iii *Germanicus Caesar ii	771	70	768	17	18	365	30	3	5
M. Junius Silanus L. Norbanus Balbus	772	771	769	18	19	366	30	6	6
M. Valerius Messalla M. Aurelius Cotta	773	772	770	19	*20	366	Dec. 31	8	6
*Tib. Caesar Augustus iv Julius Drusus Caesar ii	774	773	771	20	21	366	Dec. 31	2	6
*Dec. Haterius Agrippa *C. Sulpicius Galba	775	774	772		22	365	Jan. 1	4	5
*C. Asinius Pollio C. Antistius Veter	776	775	773		23	365	1	7	5
Ser. Cornelius Cethegus L. Visellius Varro	777	776	774		*24	366	1	2	6
M. Asinius Agrippa Cossus Cornelius Lentulus	778	777	775		25	365	Jan. 1	4	5
*Cn. Lentulus Gaetulicus *C. Calvisius Sabinus	779	778	776		26	365	1	7	5
M. Licinius Crassus L. Calpurnius Piso	780	779	777		27	365	1	2	5
Appius Iunius Silanus P. Silius Nerva	781	780	778		*28	366	1	5	6

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
*L. Rubellius Geminus *C. Fufius Geminus	782	781	779	29	365	Jan. 1	7	5
*M. Vinicius *L. Cassius Longinus	783	782	780	30	365	1	2	5
*Tib. Caesar Augustus v *L. Aelius Sejanus	784	783	781	31	365	1	5	5
*Cn. Domitius Ahenobarbus *Furius Camillus Scribonianus	785	784	782	*32	366	1	8	6
*Serv. Sulpicius Galba L. Cornelius Sulla Felix	786	785	783	33	365	Jan. 1	2	5
L. Vitellius Paullus Fabius Persicus	787	786	784	34	365	1	5	5
C. Sestius Gallus M. Servilius Nonianus	788	787	785	35	365	1	8	5
*Sex. Papinius Allenius *Q. Plautius	789	788	786	*36	366	1	3	6
*Cn. Acerronius Proculus *C. Pontius Nigrinus	790	789	787	37	365	Jan. 1	5	5
M. Aquilius Julianus P. Nonius Asprenas	791	790	788	38	365	1	8	5
*C. Caesar Augustus Germanicus ii *L. Apronius Caesianus	792	791	789	39	365	1	3	5
*C. Caesar Aug. Germanicus iii solus	793	792	790	*40	366	1	6	6

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
*C. Caesar Augustus Germanicus iv *Cn. Sentius Saturninus	794	793	791	41	365	Jan. 1	8	5
*Tib. Claudius Caesar Augustus ii C. Caecina Largus	795	794	792	42	365	1	3	5
*Tib. Claudius Caesar Augustus iii *L. Vitellius ii	796	795	793	43	366	1	6	6
L. Quinctius Crispinus ii M. Statilius Taurus	797	796	794	*44	365	Jan. 2	8	5
*M. Vinicius ii *T. Statilius Taurus Corvinus	798	797	795	45	365	Jan. 1	3	5
*Valerius Asiaticus ii *M. Iunius Silanus	799	798	796	46	366	1	6	6
*Tib. Claudius Caesar Augustus iv L. Vitellius iii	800	799	797	47	365	Jan. 2	8	5
*A. Vitellius *L. Vipsanius	801	800	798	*48	366	2	3	6
*C. Pompeius Longinus Gallus *Q. Verannius	802	801	799	49	365	Jan. 2	5	5
C. Antistius Vetus M. Suillius Nervilianus	803	802	800	50	365	2	8	5
*Tib. Claudius Caesar Augustus v *Ser. Cornelius Orfitus	804	803	801	51	365	2	3	5
*Cornelius Sulla Faustus *L. Salvius Otho Titianus	805	804	802	*52	366	2	6	6

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
D. Iunius Silanus Torquatus Q. Haterius Antoninus	806	805	803	53	365	Jan. 2	8	5
*M. Asinius Marcellus M'. Acilius Aviola	807	806	804	54	365	2	3	5
*Nero Claudius Caesar Augustus L. Antistius Vetus	808	807	805	55	365	2	6	5
*Q. Volusius Saturninus *P. Cornelius Scipio	809	808	806	*56	365	2	1	5
*Nero Claudius Caesar Augustus ii *L. Calpurnius Piso	810	809	807	57	365	Jan. 1	4	5
*Nero Claudius Caesar Augustus iii M. Valerius Messalla	811	810	808	58	365	1	7	5
C. Vipstanus Apronianus L. Fonteius Capito	812	811	809	59	365	1	2	5
*Nero Claudius Caesar Augustus iv *Cornelius Cossus Lentulus	813	812	810	*60	366	1	5	6
*Caesonius Paetus *P. Petronius Turpilianus	814	813	811	61	365	Jan. 1	7	5
*P. Marius Celsus *L. Asinius Gallus	815	814	812	62	365	1	2	5
C. Memmius Regulus L. Verginius Rufus	816	815	813	63	365	1	5	5
C. Lecanius Bassus M. Licinius Crassus Frugi	817	816	814	*64	366	1	8	6

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
*A. Licinius Nerva Silianus *M. Vestinus Atticus	818	817	815	65	365	Jan. 1	2	5
C. Luccius Telesinus C. Suetonius Paulinus	819	818	816	66	365	1	5	5
*Fonteius Capito *Iunius Rufus	820	819	817	67	365	1	8	5
*Galerius Trachalus *C. Silius Italicus	821	820	818	*68	366	1	3	6
*Serv. Sulpicius Galba Caesar Augustus ii *T. Vinius Rufinus	822	821	819	69	365	Jan. 1	5	5
*Caesar Vespasianus Augustus ii *Titus Caesar	823	822	820	70	365	1	8	5
*Caesar Vespasianus Augustus iii *M. Cocceius Nerva	824	823	821	71	365	1	3	5
Caesar Vespasianus Augustus iv Titus Caesar ii	825	824	822	*72	366	1	6	6
Domitianus Caesar ii M. Valerius Messallinus	826	825	823	73	365	Jan. 1	8	5
Caesar Vespasianus Augustus v *Titus Caesar iii	827	826	824	74	365	1	3	5
*Caesar Vespasianus Augustus vi *Titus Caesar iv	828	827	825	75	366	1	6	6
*Caesar Vespasianus Augustus vii *Titus Caesar v	829	828	826	*76	366	Jan. 2	8	6

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
*Caesar Vespasianus Augustus viii *Titus Caesar vi	830	829	827	77	366	Jan. 2	2	6
L. Ceionius Commodus D. Novius Priscus	831	830	828	78	365	Jan. 3	4	5
Caesar Vespasianus Augustus ix Titus Caesar vii	832	831	829	79	365	3	7	5
Titus Caesar Vespasianus Augustus viii Domitianus Caesar vii	833	832	830	*80	366	3	2	6
*L. Flavius Silva Nonius Bassus *Asinius Pollio Verrucosus	834	833	831	81	365	Jan. 3	4	5
Domitianus Augustus viii *T. Flavius Sabinus	835	834	832	82	365	3	7	5
Domitianus Augustus ix Q. Petilius Rufus ii	836	835	833	83	365	3	2	5
Domitianus Augustus x Oppius Sabinus	837	836	834	*84	366	3	5	6
Domitianus Augustus xi T. Aurelius Fulvus	838	837	835	85	365	Jan. 3	7	5
Domitianus Augustus xii Ser. Cornelius Dolabella	839	838	836	86	365	3	2	5
Domitianus Augustus xiii Saturninus	840	839	837	87	365	3	5	5
Domitianus Augustus xiv L. Minucius Rufus	841	840	838	*88	366	3	8	6

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
T. Aurelius Fulvus ii Atratinus	842	841	839	89	365	Jan. 3	2	5
Domitianus Augustus xv M. Cocceius Nerva ii	843	842	840	90	365	3	5	5
M. Ulpius Trajanus M'. Acilius Glabrio	844	843	841	91	365	3	8	5
Domitianus Augustus xvi Q. Volusius Saturninus	845	844	842	*92	366	3	3	6
*Sex. Pompeius Collega *Cornelius Priscus	846	845	843	93	365	Jan. 3	5	5
*Asprenas *Lateranus	847	846	844	94	365	3	8	5
Domitianus Augustus xvii T. Flavius Clemens	848	847	845	95	365	3	3	5
*C. Manlius Valens *C. Antistius Vetus	849	848	846	*96	366	3	6	6
*Nerva Caesar Augustus iii *L. Verginius Rufus iii	850	849	847	97	365	Jan. 3	8	5
*Nerva Caesar Augustus iv *Nerva Trajanus Caesar ii	851	850	848	98	365	3	3	5
C. Sosius Senecio ii A. Cornelius Palma	852	851	849	99	365	3	6	5
*Nerva Trajanus Augustus iii *M. Cornelius Fronto iii	853	852	850	*100	365	3	1	5

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A.D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
*Nerva Trajanus Augustus iv *Sex. Articuleius Paetus	854	853	851	101	365	Jan. 2	4	5
*C. Sosius Senecio iii *L. Licinius Sura ii	855	854	852	102	365	2	7	5
Suburanus ii Marcellus	856	855	853	103	365	2	2	5
Nerva Trajanus Augustus v L. Appius Maximus ii	857	856	854	*104	366	2	5	6
Tib. Iulius Candidus ii A. Iulius Quadratus ii	858	857	855	105	365	Jan. 2	7	5
L. Ceionius Commodus Verus Cerealis	859	858	856	106	365	2	2	5
*C. Sosius Senecio iv *L. Licinius Sura iii	860	859	857	107	365	2	5	5
*Ap. Annius Trebonius Gallus *M. Atilius Metilius Bradua	861	860	858	*108	366	2	8	6
A. Cornelius Palma ii Tullus	862	861	859	109	365	Jan. 2	2	5
Priscinus Orfitus	863	862	860	110	365	2	5	5
*C. Calpurnius Piso *M. Vettius Bolanus	864	863	861	111	365	2	8	5
Nerva Trajanus Augustus vi T. Sextius Africanus	865	864	862	*112	366	2	3	6

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ	Nundinal Character.	Nundinal Epact
L. Publilius Celsus ii C. Clodius Crispinus	866	865	863	113	365	Jan. 2	5	5
Q. Ninnius Hasta P. Manilius Vopiscus	867	866	864	114	365	2	8	5
L. Vipstanus Messalla M. Vergilianus Pedo	868	867	865	115	365	2	3	5
L. Aelius Lamia Aelianus Vetus	869	868	866	*116	366	2	6	6
*Niger *Vipstanus Apronianus	870	869	867	117	365	Jan. 2	8	5
Hadrianus Augustus ii Salinator	871	870	868	118	365	2	3	5
Hadrianus Augustus iii Rusticus	872	871	869	119	365	2	6	5
L. Catilius Severus T. Aurelius Fulvus	873	872	870	*120	365	2	1	5
M. Annius Verus ii Augur	874	873	871	121	365	Jan. 1	4	5
Acilius Aviola Corellius Pansa	875	874	872	122	365	1	7	5
Q. Arrius Paetinus C. Ventidius Apronianus	876	875	873	123	365	1	2	5
M'. Acilius Glabrio C. Bellicius Torquatus	877	876	874	*124	366	1	5	6

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
P. Cornelius Scipio Asiaticus ii T. Vettius Aquilinus	878	877	875	125	365	Jan. 1	7	5
M. Annius Verus iii L. Varius Ambibulus	879	878	876	126	365	1	2	5
Titianus Gallicanus	880	879	877	127	365	1	5	5
L. Nonius Asprenas Torquatus ii M. Annius Libo	881	880	878	*128	366	1	8	6
*P. Iuventius Celsus ii *Q. Iulius Balbus	882	881	879	129	365	Jan. 1	2	5
Q. Fabius Catullinus M. Flavius Aper	883	882	880	130	365	1	5	5
Ser. Octavius Laenas Pontianus M. Antonius Rufinus	884	883	881	131	365	1	8	5
Augurinus Sergianus	885	884	882	*132	366	1	3	6
Hiberus Sisenna	886	885	883	133	365	Jan. 1	5	5
C. Julius Servilius Ursus Servianus iii C. Vibius Iuventius Varus	887	886	884	134	365	1	8	5
Pontianus Atilianus	888	887	885	135	365	1	3	5
L. Ceionius Commodus Verus Sex. Vetulenus Civica Pompeianus	889	888	886	*136	365	1	6	5

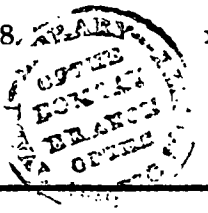

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.		Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
L. Aelius Verus Caesar ii P. Coelius Balbinus Vibullius Pius	890	889	887	136	137	365	Dec. 31	1	5
Camerinus Niger	891	890	888	137	138	365	31	4	5
T. Antoninus Pius Augustus ii Bruttius Praesens	892	891	889	138	139	365	31	7	5
T. Antoninus Pius Augustus iii M. Aurelius Caesar	893	892	890	139	*140	366	31	2	6
M. Peducaeus Syloga Priscinus T. Hoenius Severus	894	893	891	140	141	365	Dec. 31	4	5
L. Cuspius Rufinus L. Statius Quadratus	895	894	892	141	142	365	31	7	5
C. Bellicius Torquatus Tib. Claudius Atticus Herodes	896	895	893	142	143	365	31	2	5
Avitus Maximus	897	896	894	143	*144	366	31	5	6
T. Antoninus Pius Augustus iv M. Aurelius Caesar ii	898	897	895	144	145	365	Dec. 31	7	5
Sex. Erucius Clarus ii Cn. Claudius Severus	899	898	896	145	146	365	31	2	5
Largus Messalinus	900	899	897	146	147	365	31	5	5
Torquatus Julianus	901	900	898	147	*148	366	31	8	6

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ.			A. D.		Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
	Varr.	Cap.	Pol.						
Ser. Scipio Orfitus ; Q. Nonius Priscus	902	901	899	148	149	365	Dec. 31	2	5
Gallicanus Vetus	903	902	900	149	150	365	31	5	5
Sex. Quintilius Condianus Ser. Quintilius Maximus	904	903	901	150	151	365	31	8	5
Junius Glabrio Homullus	905	904	902	151	*152	366	31	3	6
C. Bruttius Praesens A. Junius Rufinus	906	905	903	152	153	365	Dec. 31	5	5
*L. Aurelius Commodus T. Sextius Lateranus	907	906	904	153	154	365	31	8	5
*C. Julius Severus *M. Rufinus Sabinianus	908	907	905	154	155	365	31	3	5
M. Ceionius Silvanus C. Serius Augurinus	909	908	906	155	*156	366	31	6	6
Barbarus Regulus	910	909	907	156	157	365	Dec. 31	8	5
Tertullus Sacerdos	911	910	908	157	158	365	31	3	5
Plautius Quintillus M. Statius Priscus	912	911	909	158	159	365	31	6	5
Appius Annius Bradua T. Vibius Barus	913	912	910	159	*160	365	31	1	5

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.		Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
M. Aurelius Caesar iii L. Aurelius Commodus ii	914	913	911	160	161	365	Dec. 30	4	5
*Q. Iunius Rusticus *Aquilinus	915	914	912	161	162	365	30	7	5
Laelianus Pastor	916	915	913	162	163	365	30	2	5
M. Nonius Macrinus Celsus	917	916	914	163	*164	366	30	5	6
M. Gavius Orfitus L. Arrius Pudens	918	917	915	164	165	365	Dec. 30	7	5
Servilius Pudens L. Fufidius Pollio	919	918	916	165	166	365	30	2	5
L. Aurelius Verus Augustus iii Quadratus	920	919	917	166	167	365	30	5	5
Apronianus Paulus	921	920	918	167	*168	366	30	8	6
Q. Sodius Priscus P. Coelius Apollinaris	922	921	919	168	169	365	Dec. 30	2	5
M. Cornelius Cethegus C. Eructus Clarus	923	922	920	169	170	365	30	5	5
Severus Herennianus	924	923	921	170	171	365	30	8	5
Maximus Orfitus	925	924	922	171	*172	366	30	3	6

TABLE I.—JULIAN CALENDAR.

At Rome.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.		Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
M. Aurelius Severus ii T. Claudius Pompeianus	926	925	923	172	173	365	Dec. 30	5	5
Gallus Flaccus	927	926	924	173	174	365	30	8	5
Piso Iulianus	928	927	925	174	175	365	30	3	5
T. Vitrasius Pollio ii M. Flavius Aper ii	929	928	926	175	*176	366	30	6	6
L. Aurelius Commodus Augustus Quintillus	930	929	927	176	177	365	Dec. 30	8	5
Orfitus Julianus Rufus	931	930	928	177	178	365	30	3	5
*L. Aurelius Commodus Augustus ii *T. Annius Aurelius Verus ii	932	931	929	178	179	365	30	6	5
L. Fulvius Bruttius Praesens ii Sex. Quintilius Condianus	933	932	930	179	*180	365	30	1	5
L. Aurelius Commodus Augustus iii Burrus	934	933	931	180	181	365	Dec. 29	4	5
*Mamertinus *Rufus	935	934	932	181	182	365	29	7	5
L. Aurelius Commodus Augustus iv Aufidius Victorinus ii	936	935	933	182	183	365	29	2	5
M. Eggius Marullus Cn. Papirius Aelianus	937	936	934	183	*184	365	29	5	5

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.		Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
*Maternus *Bradua	938	937	935	184	185	365	Dec. 28	8	5
L. Aurelius Commodus Augustus v M'. Acilius Glabrio ii	939	938	936	185	186	365	28	3	5
Crispinus Aelianus	940	939	937	186	187	366	28	6	6
C. Allius Fuscianus ii Duilius Silanus ii	941	940	938	187	*188	365	Dec. 29	8	5
Silanus Silanus	942	941	939	188	189	365	Dec. 28	3	5
L. Aurelius Commodus Augustus vi M. Petronius Septimianus	943	942	940	189	190	366	28	6	6
Apronianus Bradua	944	943	941	190	191	365	Dec. 29	8	5
L. Aurelius Commodus Augustus vii P. Helvius Pertinax ii	945	944	942	191	*192	365	29	3	5
*Q. Sosius Falco *C. Iulius Erucius Clarus	946	945	943	192	193	366	Dec. 28	6	6
L. Septimius Severus Augustus ii D. Clodius Septimius Albinus Caesar ii	947	946	944	193	194	365	Dec. 29	8	5
Scapula Tertullus Tineius Clemens	948	947	945	194	195	365	29	3	5
C. Domitius Dexter ii L. Valerius Messalla Thrasea Priscus	949	948	946	195	*196	366	29	6	6

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Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.		Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Lateranus Rufinus	950	949	947	196	197	365	Dec. 29	8	5
Tib. Saturninus C. Gallus	951	950	948	197	198	365	29	3	5
P. Cornelius Anullinus ii M. Aufidius Fronto	952	951	949	198	199	366	29	6	6
Tib. Claudius Severus C. Aufidius Victorinus	953	952	950	199	*200	365	Dec. 30	8	5
L. Annius Fabianus M. Nonius Mucianus	954	953	951	200	201	365	Dec. 29	3	5
L. Septimius Severus Augustus iii M. Aurelius Antoninus Augustus	955	954	952	201	202	366	29	6	6
P. Septimius Geta Fulvius Plautianus ii	956	955	953	202	203	365	Dec. 30	8	5
L. Fabius Galerius Septiminus Cilo ii Libo	957	956	954	203	*204	365	30	3	5
M. Aurelius Antoninus Augustus ii P. Septimius Geta Caesar	958	957	955	204	205	366	Dec. 29	6	6
Nummius Albinus Fulvius Æmilianus	959	958	956	205	206	365	Dec. 30	8	5
Aper Maximus	960	959	957	206	207	365	30	3	5
M. Aurelius Antoninus Augustus iii P. Septimius Geta Caesar ii	961	960	958	207	*208	366	30	6	6

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.		Days	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Pompeianus Avitus	962	961	959	208	209	365	Dec. 30	8	5
M'. Acilius Faustinus Triarius Rufinus	963	962	960	209	210	365	30	3	5
Q. Epidius Rufus Lollianus Gentianus Bassus	964	963	961	210	211	366	30	6	6
Julius Asper Julius Asper	965	964	962	211	*212	365	Dec. 31	8	5
*M. Aurelius Antoninus Augustus iv *D. Coelius Balbinus ii	966	965	963	212	213	365	Dec. 30	3	5
Messala Sabinus	967	966	964	213	214	366	30	6	6
Laetus ii Cerealis	968	967	965	214	215	365	Dec. 31	8	5
C. Atius Sabinus ii Cornelius Anullinus	969	968	966	215	*216	365	31	3	5
C. Bruttius Praesens T. Messius Extricatus ii	970	969	967	216	217	366	Dec. 30	6	6
M. Opelius Severus Macrinus Augustus Adventus	971	970	968	217	218	365	Dec. 31	8	5
M. Aurelius Antoninus Augustus ii Sacerdos ii	972	971	969	218	219	365	31	3	5
M. Aurelius Antoninus iii Eutychianus Comazon	973	972	970	219	*220	366	31	6	6

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Gratus Seleucus	974	973	971	220 221	365	Dec. 31	8	5
M. Aurelius Antoninus Augustus iv M. Aurelius Severus Alexander Caesar	975	974	972	221 222	365	31	3	5
L. Marius Maximus ii L. Roscius Aelianus	976	975	973	222 223	365	31	6	5
Julianus ii Crispinus	977	976	974	223 *224	366	31	1	6
Fuscus ii Dexter	978	977	975	225	365	Jan. 1	3	8
M. Aurelius Severus Alexander Augustus ii Quintilius Marcellus	979	978	976	226	365	1	6	5
Albinus Maximus	980	979	977	227	365	1	1	5
T. Manilius Modestus Ser. Calpurnius Probus	981	980	978	*228	366	1	4	6
*M. Aurelius Severus Alexander Augustus iii *Cassius Dio ii	982	981	979	229	365	Jan. 1	6	5
L. Virius Agricola Sex. Catius Clementinus	983	982	980	230	365	1	1	5
Pompeianus Pelignianus	984	983	981	231	365	1	4	5
Lupus Maximus	985	984	982	*232	366	1	7	6

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ.			A. D.	Days.	Kalendæ Januariæ.		Nundinal Character.	Nundinal Epact
	Varr.	Cap.	Pol.						
Maximus Paternus	986	985	983	233	365	Jan.	I	I	5
Maximus ii Urbanus	987	986	984	234	365		I	4	5
Severus Quintianus	988	987	985	235	365		I	7	5
C. Julius Verus Maximinus Augustus Africanus	989	988	986	*236	366		I	2	6
*Perpetuus *Cornelianus	990	989	987	237	365	Jan.	I	4	5
Pius (Ulpius) Pontianus	991	990	988	238	365		I	7	5
M. Antonius Gordianus Augustus Aviola	992	991	989	239	365		I	2	5
Sabinus ii Venustus	993	992	990	*240	366		I	5	6
M. Antonius Gordianus Augustus ii Pompeianus	994	993	991	241	365	Jan.	I	7	5
C. Vettius Atticus C. Asinius Praetextatus	995	994	992	242	365		I	2	5
Arrianus Papus	996	995	993	243	365		I	5	5
Peregrinus Aemilianus	997	996	994	*244	366		I	8	6

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
M. Julius Philippus Augustus Titianus	998	997	995	245	365	Jan. 1	2	5
Praesens Albinus	999	998	996	246	365	1	5	5
M. Julius Philippus Augustus ii M. Julius Philippus Augustus	1000	999	997	247	365	1	8	5
M. Julius Philippus Augustus iii M. Julius Philippus Augustus ii	1001	1000	998	*248	366	1	3	6
Aemilianus ii Aquilinus	1002	1001	999	249	365	Jan. 1	5	5
*C. Messius Quintus Trajanus Decius Augustus ii *Gratus	1003	1002	1000	250	365	1	8	5
C. Messius Quintus Trajanus Decius Augustus iii Q. Herennius Etruscus Messius Decius Caesar	1004	1003	1001	251	365	1	3	5
C. Vibius Trebonianus Gallus Augustus ii C. Vibius Volusianus Gallus Caesar	1005	1004	1002	*252	366	1	6	6
C. Vibius Volusianus Gallus Augustus ii Maximus	1006	1005	1003	253	365	Jan. 1	8	5
P. Licinius Valerianus Augustus ii P. Licinius Gallienus Augustus	1007	1006	1004	254	365	1	3	5
P. Licinius Valerianus Augustus iii P. Licinius Gallienus Augustus ii	1008	1007	1005	255	365	1	6	5
*Maximus ii *Glabrio	1009	1008	1006	*256	366	1	1	6

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ.			A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
	Varr.	Cap.	Pol.					
*P. Licinius Valerianus Augustus iv *P. Licinius Gallienus Augustus iii	1010	1009	1007	257	365	Jan. 1	3	5
Memmius Tuscus Bassus	1011	1010	1008	258	365	1	6	5
Aemilianus Bassus	1012	1011	1009	259	365	1	1	5
Saecularis ii Donatus	1013	1012	1010	*260	366	1	4	6
P. Licinius Gallienus Augustus iv Volusianus	1014	1013	1011	261	365	Jan. 1	6	5
P. Licinius Gallienus Augustus v Faustinus	1015	1014	1012	262	365	1	1	5
Albinus ii Dexter	1016	1015	1013	263	365	1	4	5
P. Licinius Gallienus Augustus vi Saturninus	1017	1016	1014	*264	366	1	7	6
P. Licinius Valerianus ii Lucillus	1018	1017	1015	265	365	Jan. 1	1	5
P. Licinius Gallienus Augustus vii Sabinillus	1019	1018	1016	266	365	1	4	5
Paternus Arcesilaus	1020	1019	1017	267	365	1	7	5
Paternus ii Marinianus	1021	1020	1018	*268	366	1	2	6

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ.			A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
	Varr.	Cap.	Pol.					
M. Aurelius Claudius Augustus ii Paternus	1022	1021	1019	269	365	Jan. 1	4	5
Antiochianus Orfitus	1023	1022	1020	270	365	1	7	5
L. Domitius Valerius Aurelianus Augustus M. Ceionius Virius Bassus	1024	1023	1021	271	365	1	2	5
*Quietus *Voldumianus	1025	1024	1022	*272	366	1	5	6
M. Claudius Tacitus Placidianus	1026	1025	1023	273	365	Jan. 1	7	5
L. Domitius Valerius Aurelianus Augustus ii C. Iulius Capitolinus	1027	1026	1024	274	365	1	2	5
*L. Domitius Valerius Aurelianus Augustus iii *Marcellinus	1028	1027	1025	*275	365	1	5	5
*M. Claudius Tacitus Augustus ii *Aemilianus	1029	1028	1026	*276	366	1	8	6
M. Aurelius Valerius Probus Augustus M. Aurelius Paulinus	1030	1029	1027	277	365	Jan. 1	2	5
M. Aurelius Valerius Probus Augustus ii Lupus	1031	1030	1028	278	365	1	5	5
M. Aurelius Valerius Probus Augustus iii Paternus	1032	1031	1029	279	365	1	8	5
Messala Gratus	1033	1032	1030	*280	366	1	3	6

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
M. Aurelius Valerius Probus Augustus iv Tiberianus	1034	1033	1031	281	365	Jan. 1	5	5
M. Aurelius Valerius Probus Augustus v Victorinus	1035	1034	1032	282	365	1	8	5
*M. Aurelius Carus Augustus ii *M. Aurelius Carinus Caesar	1036	1035	1033	283	365	1	3	5
*M. Aurelius Carinus Augustus ii *M. Aurelius Numerianus Augustus	1037	1036	1034	*284	366	1	6	6
C. Aurelius Valerius Diocletianus Augustus ii Aristobulus	1038	1037	1035	285	365	Jan. 1	8	5
M. Iunius Maximus ii Vettius Aquilinus	1039	1038	1036	286	365	1	3	5
C. Aurelius Valerius Diocletianus Augustus iii M. Aurelius Valerius Maximianus Augustus	1040	1039	1037	287	365	1	6	5
M. Aurelius Valerius Maximianus Augustus ii Pomponius Ianuarius	1041	1040	1038	*288	366	1	1	6
Bassus ii Quintianus	1042	1041	1039	289	365	Jan. 1	3	5
C. Valerius Aurelius Diocletianus Augustus iv M. Aurelius Valerius Maximianus Augustus iii	1043	1042	1040	290	365	1	6	5
Tiberianus Dio	1044	1043	1041	291	365	1	1	5
Hannibalianus Asclepiodotus	1045	1044	1042	*292	366	1	4	6

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ.			A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
	Varr.	Cap.	Pol.					
C. Aurelius Valerius Diocletianus Augustus v M. Aurelius Valerius Maximianus Augustus iv	1046	1045	1043	293	365	Jan. 1	6	5
Flavius Valerius Constantius Caesar C. Galerius Valerius Maximianus Caesar	1047	1046	1044	294	365	1	1	5
Tuscus Anulinus	1048	1047	1045	295	365	1	4	5
C. Aurelius Valerius Diocletianus Augustus vi Flavius Valerius Constantius Caesar ii	1049	1048	1046	*296	366	1	7	6
M. Aurelius Valerius Maximianus Augustus v C. Galerius Valerius Maximianus Caesar ii	1050	1049	1047	297	365	Jan. 1	1	5
Faustus ii Gallus	1051	1050	1048	298	365	1	4	5
C. Aurelius Valerius Diocletianus Augustus vii M. Aurelius Valerius Maximianus Augustus vi	1052	1051	1049	299	365	1	7	5
Flavius Valerius Constantius Caesar iii C. Galerius Valerius Maximianus Caesar iii	1053	1052	1050	*300	366	1	2	6
Titianus ii Nepotianus	1054	1053	1051	301	365	Jan. 1	4	5
Flavius Valerius Constantius Caesar iv C. Galerius Valerius Maximianus Caesar iv	1055	1054	1052	302	365	1	7	5
C. Aurelius Valerius Diocletianus Augustus viii M. Aurelius Valerius Maximianus Augustus vii	1056	1055	1053	303	365	1	2	5
C. Aurelius Valerius Diocletianus Augustus ix M. Aurelius Valerius Maximianus Augustus viii	1057	1056	1054	*304	366	1	5	6

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ.			A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
	Varr.	Cap.	Pol.					
Flavius Valerius Constantius Caesar v C. Galerius Valerius Maximianus Caesar v	1058	1057	1055	305	365	Jan. 1	7	5
*Flavius Valerius Constantius Augustus vi *C. Galerius Valerius Maximianus Augustus vi	1059	1058	1056	306	365	1	2	5
*M. Aurelius Valerius Maximianus Augustus ix *Flavius Valerius Constantinus Caesar	1060	1059	1057	307	365	1	5	5
*M. Aurelius Valerius Maximianus Augustus x *C. Galerius Valerius Maximianus Augustus vii	1061	1060	1058	*308	366	1	8	6
Post Consulatum { Valerii Maximiani Augusti x Galerii Maximiani Augusti vii	1062	1061	1059	309	365	Jan. 1	2	5
Post Consulatum { *Valerii Maximiani Aug. x *Galerii Maximiani Aug. vii	1063	1062	1060	310	365	1	5	5
*C. Galerius Valerius Maximianus viii	1064	1063	1061	311	365	1	8	5
Flavius Valerius Constantinus Augustus ii P. Valerius Licinianus Licinius Augustus ii	1065	1064	1062	*312	366	1	3	6
Flavius Valerius Constantinus Augustus iii P. Valerius Licinianus Licinius Augustus iii	1066	1065	1063	313	365	Jan. 1	5	5
C. Ceionius Rufius Volusianus ii Annianus	1067	1066	1064	314	365	1	8	5
Flavius Valerius Constantinus Augustus iv P. Valerius Licinianus Licinius Augustus iv	1068	1067	1065	315	365	1	3	5
Sabinus Rufinus	1069	1068	1066	*316	366	1	6	6

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ.			A. D.	Days.	Kalendæ Januariæ.		Nundinal Character.	Nundinal Epact
	Varr.	Cap.	Pol.						
*Gallicanus *Septimius Bassus	1070	1069	1067	317	365	Jan.	I	8	5
P. Valerius Licinianus Licinius Augustus v Flavius Julius Crispus Caesar	1071	1070	1068	318	365		I	3	5
Flavius Valerius Constantinus Augustus v Licinius Caesar	1072	1071	1069	319	365		I	6	5
Flavius Valerius Constantinus Augustus vi Flavius Valerius Constantinus Caesar	1073	1072	1070	*320	366		I	I	6
Flavius Julius Crispus Caesar ii Flavius Valerius Constantinus Caesar ii	1074	1073	1071	321	365	Jan.	I	3	5
Petronius Probianus Anicius Julianus	1075	1074	1072	322	365		I	6	5
Acilius Severus Vettius Rufinus	1076	1075	1073	323	365		I	I	5
Flavius Julius Crispus Caesar iii Flavius Valerius Constantinus Caesar iii	1077	1076	1074	*324	366		I	4	6
Paulinus Julianus	1078	1077	1075	325	365	Jan.	I	6	5
Flavius Valerius Constantinus Augustus vii Flavius Julius Constantius Caesar	1079	1078	1076	326	365		I	I	5
Constantius Maximus	1080	1079	1077	327	365		I	4	5
Januarinus Justus	1081	1080	1078	*328	366		I	7	6

TABLE I.—IRREGULAR CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ.			A. D.	Days.	Kalendæ Januariæ	Nundinal Character.	Nundinal Epact
	Varr.	Cap.	Pol.					
Flavius Valerius Constantinus Augustus viii Flavius Valerius Constantinus Caesar iv	1082	1081	1079	329	365	Jan. 1	1	5
Gallicanus Symmachus	1083	1082	1080	330	365	1	4	5
Bassus Ablavius	1084	1083	1081	331	365	1	7	5
Pacatianus Hilarianus	1085	1084	1082	*332	366	1	2	6
Dalmatius Zenophilus	1086	1085	1083	333	365	Jan. 1	4	5
Optatus Anicius Paulinus	1087	1086	1084	334	365	1	7	5
Flavius Julius Constantius Rufius Albinus	1088	1087	1085	335	365	1	2	5
Nepotianus Facundus	1089	1088	1086	*336	366	1	5	6
Felicianus Ti. Fabius Titianus	1090	1089	1087	337	365	Jan. 1	7	5
Ursus Polemius	1091	1090	1088	338	365	1	2	5
Flavius Julius Constantius Augustus ii Flavius Julius Constans Augustus	1092	1091	1089	339	365	1	5	5
Acindynus Valerius Proculus	1093	1092	1090	*340	366	1	8	6

Table I.—Julian Calendar.

At Rome.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Marcellinus Probinus	1094	1093	1091	341	365	Jan. 1	2	5
Flavius Julius Constantius Augustus iii Flavius Julius Constans Augustus ii	1095	1094	1092	342	365	1	5	5
M. Maecius Memmius Placidus Romulus	1096	1095	1093	343	365	1	8	5
Leontius Sallustius	1097	1096	1094	*344	366	1	3	6
Amantius Albinus	1098	1097	1095	345	365	Jan. 1	5	5
Flavius Julius Constantius Augustus iv Flavius Julius Constans Augustus iii	1099	1098	1096	346	365	1	8	5
Rufinus Eusebius	1100	1099	1097	347	365	1	3	5
Flavius Philippus Flavius Salia	1101	1100	1098	*348	366	1	6	6
Ulpius Limenius Aco Catulinus	1102	1101	1099	349	365	Jan. 1	8	5
Sergius Nigrinianus	1103	1102	1100	350	365	1	3	5
Post Consulatum { Sergii et Nigriniani	1104	1103	1101	351	365	1	6	5
Flavius Julius Constantius Augustus v Flavius Constantius Caesar	1105	1104	1102	*352	366	1	1	6

TABLE I.—JULIAN CALENDAR.

Consular Ingress, the Kalends of January.

Consules.	Urbis Conditæ. Varr.	Cap.	Pol.	A. D.	Days.	Kalendæ Januariæ.	Nundinal Character.	Nundinal Epact
Flavius Julius Constantius Augustus vi Flavius Constantius Caesar ii	1106	1105	1103	353	365	Jan. 1	3	5
Flavius Julius Constantius Augustus vii Flavius Constantius Caesar iii	1107	1106	1104	354	365	1	6	5
Arbetio Lollianus	1108	1107	1105	355	365	1	1	5
Flavius Julius Constantius Augustus viii Flavius Claudius Julianus Caesar	1109	1108	1106	*356	366	1	4	6

Table II.—Eikositetraeteris Pompiliana.

In Mensibus expansis.

Cycle.	Sum of Days.	Lunar Epact	Nundinal Characters. Nundinal Period. Cycle i.	ii.	iii.	iv.	Nundinal Epact in every Cycle.	Kalendæ. Januarius 29.	Martius 31.	Aprilis 29.	Maius 31.	Junius 29.
i	355	25	5	7	1	3	3	Feb. 17	Mar. 18	Apr. 18	May 17	Jun. 17
*ii	377	26	2	4	6	8	1	7	8	8	7	7
iii	355	19	1	3	5	7	3	19	20	20	19	19
*iv	378	20	6	8	2	4	2	9	9	9	8	8
v	355	14	4	6	8	2	3	Feb. 21	Mar. 22	Apr. 22	May 21	Jun. 21
*vi	377	15	1	3	5	7	1	11	12	12	11	11
vii	355	8	8	2	4	6	3	23	24	24	23	23
*viii	378	9	5	7	1	3	2	13	13	13	12	12
ix	355	3	3	5	7	1	3	Feb. 25	Mar. 26	Apr. 26	May 25	Jun. 25
*x	377	4	8	2	4	6	1	15	16	16	15	15
xi	355	27	7	1	3	5	3	27	28	28	27	27
*xii	378	28	4	6	8	2	2	17	17	17	16	16
xiii	355	22	2	4	6	8	3	Mar. 1	Mar. 30	Apr. 30	May 29	Jun. 29
*xiv	377	23	7	1	3	5	1	Feb. 19	20	20	19	19
xv	355	16	6	8	2	4	3	Mar. 3	Apr. 1	May 2	31	July 1
*xvi	378	17	3	5	7	1	2	Feb. 21	Mar. 21	Apr. 21	20	Jun. 20
xvii	355	11	1	3	5	7	3	Mar. 5	Apr. 3	May 4	Jun. 2	July 3
*xviii	377	12	6	8	2	4	1	Feb. 23	Mar. 24	Apr. 24	May 23	Jun. 23
xix	355	5	5	7	1	3	3	Mar. 7	Apr. 5	May 6	Jun. 4	July 5
xx	355	6	2	4	6	8	3	Feb. 25	Mar. 25	Apr. 25	May 24	Jun. 24
*xxi	377	7	7	1	3	5	1	Feb. 14	Mar. 15	Apr. 15	May 14	Jun. 14
xxii	355	30	6	8	2	4	3	26	27	27	26	26
xxiii	355	1	3	5	7	1	3	16	17	17	16	16
*xxiv	377	2	8	2	4	6	1	6	6	6	5	5

TABLE II.—EIKOSITETRAETERIS POMPILIANA.

In Mensibus expansis.

Quinctilis 31.	Sextilis 29.	September 29.	October 31.	November 29.	December 29.	Februarius 28 or 23.	Merkedonius 27 or 28.
July 16	Aug. 16	Sep. 14	Oct. 13	Nov. 13	Dec. 12	Jan. 10	
6	6	4	3	3	2	23 Dec. 31	27 Jan. 23
18	18	16	15	15	14	Jan. 12	
7	7	5	4	4	3	23 1	28 Jan. 24
July 20	Aug. 20	Sep. 18	Oct. 17	Nov. 17	Dec. 16	Jan. 14	
10	10	8	7	7	6	23 4	27 Jan. 27
22	22	20	19	19	18	16	
11	11	9	8	8	7	23 5	28 Jan. 28
July 24	Aug. 24	Sep. 22	Oct. 21	Nov. 21	Dec. 20	Jan. 18	
14	14	12	11	11	10	23 8	27 Jan. 31
26	26	24	23	23	22	20	
15	15	13	12	12	11	23 9	28 Feb. 1
July 28	Aug. 28	Sep. 26	Oct. 25	Nov. 25	Dec. 24	Jan. 22	
18	18	16	15	15	14	23 12	27 Feb. 4
30	30	28	27	27	26	24	
19	19	17	16	16	15	23 13	28 Feb. 5
Aug. 1	Sep. 1	Sep. 30	Oct. 29	Nov. 29	Dec. 28	Jan. 26	
July 22	Aug. 22	20	19	19	18	23 16	27 Feb. 8
Aug. 3	Sep. 3	Oct. 2	31	Dec. 1	30	28	
July 23	Aug. 23	Sep. 21	20	Nov. 20	19	17	
July 13	Aug. 13	Sep. 11	Oct. 10	Nov. 10	Dec. 9	23 Jan. 7	27 Jan. 30
25	25	23	22	22	21	19	
15	15	13	12	12	11	9	
4	4	2	1	1	Nov. 30	23 Dec. 29	27 Jan. 21

Table III.—Eikositetraeteris Decemviralis.

In Mensibus expansis.

Cycle.	Sum of Days.	Lunar Epact.	Nundinal Characters. Nundinal Period. Cycle i.	ii.	iii.	iv.	Nundinal Epact in every Cycle.	Kalendæ. Januarius 29.	Februarius 23 or 28.	Merkedonius 27 or 28.	Martius 31.
*i	377	4	5	7	1	3	1	Dec. 29	23 Jan. 27	27 Feb. 19	Mar. 18
ii	355	27	4	6	8	2	3	Jan. 10	Feb. 8		8
*iii	378	28	1	3	5	7	2	Dec. 31	23 Jan. 29	28 Feb. 21	21
iv	355	22	7	1	3	5	3	Jan. 13	Feb. 11		10
*v	377	23	4	6	8	2	1	Jan. 2	23 Jan. 31	27 Feb. 23	Mar. 22
vi	355	16	3	5	7	1	3	14	Feb. 12		12
*vii	378	17	8	2	4	6	2	4	23 2	28 Feb. 25	25
viii	355	11	6	8	2	4	3	17	15		14
*ix	377	12	3	5	7	1	1	Jan. 6	23 Feb. 4	27 Feb. 27	Mar. 26
x	355	5	2	4	6	8	3	18	16		16
*xi	378	6	7	1	3	5	2	8	23 6	28 Mar. 1	29
xii	355	30	5	7	1	3	3	21	19		18
*xiii	377	1	2	4	6	8	1	Jan. 10	23 Feb. 8	27 Mar. 3	Mar. 30
xiv	355	24	1	3	5	7	3	22	20		20
*xv	378	25	6	8	2	4	2	12	23 10	28 Mar. 5	Apr. 2
xvi	355	19	4	6	8	2	3	25	23		Mar. 22
*xvii	377	20	1	3	5	7	1	Jan. 14	23 Feb. 12	27 Mar. 7	Apr. 3
xviii	355	13	8	2	4	6	3	26	24		Mar. 24
*xix	377	14	5	7	1	3	1	16	23 14	27 Mar. 9	Apr. 5
xx	355	7	4	6	8	2	3	28	26		Mar. 25
xxi	355	8	1	3	5	7	3	Jan. 17	Feb. 15		Mar. 15
*xxii	377	9	6	8	2	4	1	7	23 5	27 Feb. 28	27
xxiii	355	2	5	7	1	3	3	19	17		17
xxiv	355	3	2	4	6	8	3	9	7		6

TABLE III.—EIKOSITETRAETERIS DECEMVIRALIS.

In Mensibus expansis.

Aprilis 29.	Maius 31.	Junius 29.	Quinctilis 31.	Sextilis 29.	September 29.	October 31.	November 29.	December 29.
Apr. 18	May 17	Jun. 17	July 16	Aug. 16	Sep. 14	Oct. 13	Nov. 13	Dec. 12
8	7	7	6	6	4	3	3	2
21	20	20	19	19	17	16	16	15
10	9	9	8	8	6	5	5	4
Apr. 22	May 21	Jun. 21	July 20	Aug. 20	Sep. 18	Oct. 17	Nov. 17	Dec. 16
12	11	11	10	10	8	7	7	6
25	24	24	23	23	21	20	20	19
14	13	13	12	12	10	9	9	8
Apr. 26	May 25	Jun. 25	July 24	Aug. 24	Sep. 22	Oct. 21	Nov. 21	Dec. 20
16	15	15	14	14	12	11	11	10
29	28	28	27	27	25	24	24	23
18	17	17	16	16	14	13	13	12
Apr. 30	May 29	Jun. 29	July 28	Aug. 28	Sep. 26	Oct. 25	Nov. 25	Dec. 24
20	19	19	18	18	16	15	15	14
May 3	June 1	July 2	31	31	29	28	28	27
Apr. 22	May 21	Jun. 21	20	20	18	17	17	16
May 4	June 2	July 3	Aug. 1	Sep. 1	Sep. 30	Oct. 29	Nov. 29	Dec. 28
Apr. 24	May 23	Jun. 23	July 22	Aug. 22	20	19	19	18
May 6	June 4	July 5	Aug. 3	Sep. 3	Oct. 2	31	Dec. 1	30
Apr. 25	May 24	Jun. 24	July 23	Aug. 23	Sep. 21	20	Nov. 20	19
Apr. 15	May 14	Jun. 14	July 13	Aug. 13	Sep. 11	Oct. 10	Nov. 10	Dec. 9
27	26	26	25	25	23	22	22	21
17	16	16	15	15	13	12	12	11
6	5	5	4	4	2	1	1	Nov. 30

TABLE IV. PART I.—IRREGULAR CALENDAR.

In Annis et Mensibus expansis.

A. Ch. N.		Cycle. i.	Sum of Days.	Nundinal Character.	Nundinal Epact	Kalendæ. Januarius 29.	Februarius 28. 27. 23.	Merkedonius 28. 27.	Martius 31.	Aprilis. 29.
209	208	*i	377	1	1	Dec. 29	23 Jan. 27	27 Feb. 19	Mar. 18	Apr. 18
	207	ii	356	8	4	Jan. 10	28 Feb. 8		8	8
	206	iii	376	4	4	1	28 Jan. 30		Feb. 27	Mar. 30
206	*205	iv	356	8	4	Dec. 23	28 21		18	20
205	204	v	356	4	4	Dec. 13	28 Jan. 11		Feb. 8	Mar. 11
204	203	vi	356	8	4	4	28 2		Jan. 30	2
203	202	vii	356	4	4	Nov. 25	28 Dec. 24		21	Feb. 21
202	*201	viii	356	8	4	16	28 15		12	12
201	200	ix	356	4	4	Nov. 6	28 Dec. 5		Jan. 2	Feb. 2
200	199	x	354	8	2	Oct. 28	27 Nov. 26		Dec. 23	Jan. 23
199	198	xi	355	6	3	17	28 15		13	13
198	*197	xii	355	3	3	7	28 5		3	3
197	196	xiii	354	8	2	Sep. 26	27 Oct. 25		Nov. 21	Dec. 22
196	195	xiv	355	6	3	15	28 14		11	12
195	194	xv	355	3	3	5	28 4		1	2
194	*193	xvi	354	8	2	Aug. 26	27 Sep. 24		Oct. 21	Nov. 21
193	192	xvii	355	6	3	Aug. 14	28 Sep. 12		Oct. 10	Nov. 10
192	191	*xviii	377	3	1	4	23 2	27 Sep. 25	22	22
191	190	*xix	378	2	2	16	23 14	28 Oct. 7	Nov. 4	Dec. 5
190	*189	xx	355	8	3	29	28 27		Oct. 25	Nov. 25
189	188	*xxi	378	5	2	Aug. 18	23 Sep. 16	28 Oct. 9	Nov. 6	Dec. 7
188	187	*xxii	377	3	1	31	23 29	27 22	18	19
187	186	xxiii	355	2	3	Sep. 12	28 Oct. 11		8	9
186	*185	*xxiv	378	7	2	2	23 1	28 24	21	22

TABLE IV. PART I.—IRREGULAR CALENDAR.

Cycle I. B. C. 209—B. C. 185.

Maius 31.	Junius 29.	Quinctilis 31.	Sextilis 29.	September 29.	October 31.	November 29.	December 29. 30.
May 17	Jun. 17	July 16	Aug. 16	Sep. 14	Oct. 13	Nov. 13	Dec. 12
7	7	6	6	4	3	3	30 2
Apr. 28	May 29	Jun. 27	July 28	Aug. 26	Sep. 24	Oct. 25	30 Nov. 23
18	19	17	18	16	14	15	30 13
Apr. 9	May 10	Jun. 8	July 9	Aug. 7	Sep. 5	Oct. 6	30 Nov. 4
Mar. 31	1	May 30	Jun. 30	July 29	Aug. 27	Sep. 27	30 Oct. 26
22	Apr. 22	21	21	20	18	18	30 17
12	12	11	11	10	8	8	30 7
Mar. 3	Apr. 3	May 2	Jun. 2	July 1	July 30	Aug. 30	30 Sep. 28
Feb. 21	Mar. 24	Apr. 22	May 23	Jun. 21	20	20	18
11	14	12	13	11	10	10	8
1	3	1	2	May 31	Jun. 29	July 30	Aug. 28
Jan. 20	Feb. 20	Mar. 21	Apr. 21	May 20	Jun. 18	July 19	Aug. 17
10	10	11	11	10	8	9	7
Dec. 31	Jan. 31	1	1	Apr. 30	May 29	Jun. 29	July 28
20	20	Feb. 18	Mar. 20	18	17	17	16
Dec. 9	Jan. 9	Feb. 7	Mar. 10	Apr. 8	May 7	Jun. 7	July 6
21	21	19	22	20	19	19	18
Jan. 3	Feb. 3	Mar. 4	Apr. 4	May 3	Jun. 1	July 2	31
Dec. 24	Jan. 24	Feb. 22	Mar. 24	Apr. 22	May 21	Jun. 21	20
Jan. 5	Feb. 5	Mar. 6	Apr. 6	May 5	Jun. 3	July 4	Aug. 2
17	17	18	18	17	15	16	14
7	7	8	8	7	5	6	4
20	20	20	20	19	17	18	16

Table IV. Part II.—Irregular Calendar.

In Annis et Mensibus expansis.

A. Ch. N.		Cycle. ii.	Sum of Days.	Nundinal Character.	Nundinal Epact	Kalendæ. Januarius 29.	Februarius 28. 27. 23.	Merkedonius 28. 27.	Martius 31.	Aprilis 29.
185	184	i	355	5	3	Sep. 14	28 Oct. 13		Nov. 10	Dec. 11
184	183	*ii	378	2	2	4	23 3	28 Oct. 26	23	24
183	182	*iii	377	8	1	17	23 16	27 Nov. 8	Dec. 5	Jan. 5
182	*181	*iv	378	7	2	29	23 28	28 20	18	18
181	180	v	355	5	3	Oct. 11	28 Nov. 9		Dec. 7	Jan. 7
180	179	*vi	378	2	2	1	23 Oct. 30	28 Nov. 22	20	20
179	178	vii	355	8	3	14	28 Nov. 12		10	10
178	*177	*viii	377	5	1	4	23 2	27 Nov. 25	22	22
177	176	ix	356	4	4	Oct. 15	28 Nov. 13		Dec. 11	Jan. 11
176	175	*x	378	8	2	6	23 4	28 Nov. 27	25	25
175	174	xi	355	6	3	19	28 17		15	15
174	*173	*xii	377	3	1	9	23 7	27 Nov. 30	27	27
173	172	xiii	356	2	4	Oct. 20	28 Nov. 18		Dec. 16	Jan. 16
172	171	xiv	355	6	3	11	28 9		7	7
171	270	xv	355	3	3	1	28 Oct. 30		Nov. 27	Dec. 28
170	*169	*xvi	377	8	1	Sep. 21	24 20	26 Nov. 13	Dec. 9	Jan. 9
169	168	*xvii	378	7	2	Oct. 2	23 Oct. 31	28 Nov. 23	Dec. 21	Jan. 21
168	167	xviii	354	5	2	15	27 Nov. 13		10	10
167	166	*xix	377	3	1	4	23 2	27 Nov. 25	22	22
166	*165	*xx	378	2	2	16	23 14	28 Dec. 7	Jan. 4	Feb. 4
165	164	*xxi	377	8	1	Oct. 28	23 Nov. 26	27 Dec. 19	Jan. 15	Feb. 15
164	163	*xxii	377	7	1	Nov. 9	23 Dec. 8	27 31	27	27
163	162	*xxiii	377	6	1	21	23 20	27 Jan. 12	Feb. 8	Mar. 11
162	*161	xxiv	354	5	2	Dec. 3	27 Jan. 1		Jan. 28	Feb. 28

TABLE IV. PART II.—IRREGULAR CALENDAR.

Cycle II. B. C. 185—B. C. 161.

Maius. 31.	Junius 29.	Quinctilis 31.	Sextilis 29.	September. 29.	October 31.	November 29.	December 29. 30.
Jan. 9	Feb. 9	Mar. 10	Apr. 10	May 9	June 7	July 8	Aug. 6
22	22	23	23	22	20	21	19
Feb. 3	Mar. 6	Apr. 4	May 5	June 3	July 2	Aug. 2	31
16	18	16	17	15	14	14	Sep. 12
Feb. 5	Mar. 8	Apr. 6	May 7	June 5	July 4	Aug. 4	Sep. 2
18	21	19	20	18	17	17	15
8	11	9	10	8	7	7	5
20	22	20	21	19	18	18	16
Feb. 9	Mar. 12	Apr. 10	May 11	June 9	July 8	Aug. 8	30 Sep. 6
23	26	24	25	23	22	22	20
13	16	14	15	13	12	12	10
25	27	25	26	24	23	23	21
Feb. 14	Mar. 17	Apr. 15	May 16	June 14	July 13	Aug. 13	30 Sep. 11
5	8	6	7	5	4	4	2
Jan. 26	Feb. 26	Mar. 27	Apr. 27	May 26	June 24	July 25	Aug. 23
Feb. 7	Mar. 9	Apr. 7	May 8	June 6	July 5	Aug. 5	Sept. 3
Feb. 19	Mar. 22	Apr. 20	May 21	June 19	July 18	Aug. 18	Sep. 16
8	11	9	10	8	7	7	5
... 20	23	21	22	20	19	19	17
Mar. 4	Apr. 4	May 3	June 3	July 2	31	31	29
Mar. 16	Apr. 16	May 15	June 15	July 14	Aug. 12	Sep. 12	Oct. 11
28	28	27	27	26	24	24	23
Apr. 9	May 10	June 8	July 9	Aug. 7	Sep. 5	Oct. 6	Nov. 4
Mar. 28	Apr. 28	May 27	June 27	July 26	Aug. 24	Sep. 24	Oct. 23

Table IV. Part III.—Irregular Calendar.

In Annis et Mensibus expansis.

A. Ch. N.		Cycle. iii.	Sum of Days.	Nundinal Character.	Nundinal Epact	Kalendæ. Januarius 29.	Februarius 28. 27. 23.	Merkedonius 28. 27.	Martius 31.	Aprilis 29.
161	160	*i	377	3	1	Nov. 21	23 Dec. 20	27 Jan. 12	Feb. 8	Mar. 11
160	159	ii	354	2	2	Dec. 3	27 Jan. 1		Jan. 28	Feb. 28
159	158	*iii	377	8	1	Nov. 22	23 Dec. 21	27 Jan. 13	Feb. 9	Mar. 12
158	*157	*iv	377	7	1	Dec. 4	23 Jan. 2	27 25	21	23
157	156	*v	377	6	1	Dec. 15	23 Jan. 13	27 Feb. 5	Mar. 4	Apr. 4
156	155	*vi	377	5	1	27	23 25	27 17	16	16
	154	vii	354	4	2	Jan. 8	27 Feb. 6		5	5
154	*153	*viii	378	2	2	Dec. 28	23 Jan. 26	28 Feb. 18	17	17
	152	*ix	377	8	1	Jan. 9	23 Feb. 7	27 Mar. 2	Mar. 29	Apr. 29
	151	x	355	7	3	21	28 19		19	19
	150	*xi	378	4	2	11	23 9	28 Mar. 4	Apr. 1	May 2
	*149	xii	355	2	3	24	28 22		Mar. 21	Apr. 21
	148	*xiii	378	7	2	Jan. 13	23 Feb. 11	28 Mar. 6	Apr. 3	May 4
	147	xiv	355	5	3	26	28 24		Mar. 24	Apr. 24
	146	xv	355	2	3	16	28 14		14	14
	*145	*xvi	378	7	2	6	23 4	28 Feb. 27	26	26
	144	xvii	355	5	3	Jan. 18	28 Feb. 16		Mar. 16	Apr. 16
	143	*xviii	378	2	2	8	23 6	28 Mar. 1	29	29
	142	xix	355	8	3	21	28 19		19	19
	*141	*xx	378	5	2	11	23 9	28 Mar. 3	31	May 1
	140	xxi	355	3	3	Jan. 23	28 Feb. 21		Mar. 21	Apr. 21
	139	*xxii	378	8	2	13	23 11	28 Mar. 6	Apr. 3	May 4
	138	xxiii	355	6	3	26	28 24		Mar. 24	Apr. 24
	*137	xxiv	355	3	3	16	28 14		13	13

TABLE IV. PART III.—IRREGULAR CALENDAR.

Cycle III. B. C. 161—B. C. 137.

Maius 31.	Junius 29.	Quinctilis 31.	Sextilis 29.	September 29.	October 31.	November 29.	December 29.
Apr. 9	May 10	June 8	July 9	Aug. 7	Sep. 5	Oct. 6	Nov. 4
Mar. 29	Apr. 29	May 28	June 28	July 27	Aug. 25	Sep. 25	Oct. 24
Apr. 10	May 11	June 9	July 10	Aug. 8	Sep. 6	Oct. 7	Nov. 5
21	22	20	21	19	17	18	16
May 3	June 3	July 2	Aug. 2	Aug. 31	Sep. 29	Oct. 30	Nov. 28
15	15	14	14	Sep. 12	Oct. 11	Nov. 11	Dec. 10
4	4	3	3	1	Sep. 30	Oct. 31	Nov. 29
16	16	15	15	13	Oct. 12	Nov. 12	Dec. 11
May 28	June 28	July 27	Aug. 27	Sep. 25	Oct. 24	Nov. 24	Dec. 23
18	18	17	17	15	14	14	13
31	July 1	30	30	28	27	27	26
20	June 20	19	19	17	16	16	15
June 2	July 3	Aug. 1	Sep. 1	Sep. 30	Oct. 29	Nov. 29	Dec. 28
May 23	June 23	July 22	Aug. 22	20	19	19	18
13	13	12	12	10	9	9	8
25	25	24	24	22	21	21	20
May 15	June 15	July 14	Aug. 14	Sep. 12	Oct. 11	Nov. 11	Dec. 10
28	28	27	27	25	24	24	23
... 18	18	17	17	15	14	14	13
30	30	29	29	27	26	26	25
May 20	June 20	July 19	Aug. 19	Sep. 17	Oct. 16	Nov. 16	Dec. 15
June 2	July 3	Aug. 1	Sep. 1	30	29	29	28
May 23	June 23	July 22	Aug. 22	20	19	19	18
12	12	11	11	9	8	8	7

Table IV. Part IV.—Irregular Calendar.

In Annis et Mensibus expansis.

A. Ch. N.		Cycle. iv.	Sum of Days.	Nundinal Character.	Nundinal Epact	Kalendæ. Januarius 29.	Februarius 28. 23.	Merkedonius 28. 27.	Martius 31.	Aprilis 29.
	136	*i	378	8	2	Jan. 5	23 Feb. 3	28 Feb. 26	Mar. 26	Apr. 26
	135	ii	355	6	3	18	28 16		16	16
	134	iii	355	3	3	8	28 6		6	6
134	*133	iv	355	8	3	Dec. 29	28 Jan. 27		Feb. 24	Mar. 26
133	132	*v	378	5	2	Dec. 18	23 Jan. 16	28 Feb. 8	Mar. 8	Apr. 8
132	131	*vi	377	3	1	31	23 29	27 21	20	20
	130	vii	355	2	3	Jan. 12	28 Feb. 10		10	10
	*129	*viii	378	7	2	2	23 Jan. 31	28 Feb. 23	22	22
	128	ix	355	5	3	Jan. 14	28 Feb. 12		Mar. 12	Apr. 12
	127	*x	378	2	2	4	23 2	28 Feb. 25	25	25
	126	xi	355	8	3	17	28 15		15	15
	*125	*xii	378	5	2	7	23 5	28 28	27	27
	124	xiii	355	3	3	Jan. 19	28 Feb. 17		Mar. 17	Apr. 17
	123	xiv	355	8	3	9	28 7		7	7
123	122	xv	355	5	3	Dec. 30	28 Jan. 28		Feb. 25	Mar. 28
122	*121	xvi	355	2	3	20	28 18		15	17
121	120	*xvii	378	7	2	Dec. 9	23 Jan. 7	28 Jan. 30	Feb. 27	Mar. 30
120	119	*xviii	378	5	2	22	23 20	28 Feb. 12	Mar. 12	Apr. 12
	118	xix	355	3	3	Jan. 4	28 Feb. 2		2	2
118	*117	xx	355	8	3	Dec. 25	28 Jan. 23		Feb. 20	Mar. 22
117	116	*xxi	378	5	2	Dec. 14	23 Jan. 12	28 Feb. 4	Mar. 4	Apr. 4
116	115	xxii	355	3	3	27	28 25		Feb. 22	Mar. 25
115	114	*xxiii	378	8	2	17	23 15	28 Feb. 7	Mar. 7	Apr. 7
114	*113	xxiv	355	6	3	30	28 28		Feb. 25	Mar. 27

TABLE IV. PART IV.—IRREGULAR CALENDAR.

Cycle IV. B. C. 136—B. C. 113.

Maius 31.	Junius 29.	Quinctilis 31.	Sextilis 29.	September 29.	October 31.	November 29.	December 29.
May 25	Jun. 25	July 24	Aug. 24	Sep. 22	Oct. 21	Nov. 21	Dec. 20
15	15	14	14	12	11	11	10
5	5	4	4	2	1	1	Nov. 30
Apr. 24	May 25	Jun. 23	July 24	Aug. 22	Sep. 20	Oct. 21	19
May 7	Jun. 7	July 6	Aug. 6	Sep. 4	Oct. 3	Nov. 3	Dec. 2
19	19	18	18	16	15	15	14
9	9	8	8	6	5	5	4
21	21	20	20	18	17	17	16
May 11	Jun. 11	July 10	Aug. 10	Sep. 8	Oct. 7	Nov. 7	Dec. 6
24	24	23	23	21	20	20	19
14	14	13	13	11	10	10	9
26	26	25	25	23	22	22	21
May 16	Jun. 16	July 15	Aug. 15	Sep. 13	Oct. 12	Nov. 12	Dec. 11
6	6	5	5	3	2	2	1
Apr. 26	May 27	Jun. 25	July 26	Aug. 24	Sep. 22	Oct. 23	Nov. 21
15	16	14	15	13	11	12	10
Apr. 28	May 29	Jun. 27	July 28	Aug. 26	Sep. 24	Oct. 25	Nov. 23
May 11	Jun. 11	July 10	Aug. 10	Sep. 8	Oct. 7	Nov. 7	Dec. 6
1	1	Jun. 30	July 31	Aug. 29	Sep. 27	Oct. 28	Nov. 26
Apr. 20	May 21	19	20	18	16	17	15
May 3	Jun. 3	July 2	Aug. 2	Aug. 31	Sep. 29	Oct. 30	Nov. 28
Apr. 23	May 24	Jun. 22	July 23	21	19	20	18
May 6	Jun. 6	July 5	Aug. 5	Sep. 3	Oct. 2	Nov. 2	Dec. 1
Apr. 25	May 26	Jun. 24	July 25	Aug. 23	Sep. 21	Oct. 22	Nov. 20

Table IV. Part V.—Irregular Calendar.

In Annis et Mensibus expansis.

A. Ch. N.		Cycle. v.	Sum of Days.	Nundinal Character.	Nundinal Epact	Kalendæ. Januarius 29.	Februarius 28. 23.	Merkedonius 28. 27.	Martius 31.	Aprilis 29.
113	112	*i	377	3	1	Dec. 19	23 Jan. 17	27 Feb. 9	Mar. 8	Apr. 8
112	111	ii	355	2	3	31	28 29		Feb. 26	Mar. 29
111	110	iii	355	7	3	21	28 19		16	19
110	*109	*iv	378	4	2	11	23 9	28 Feb. 1	29	31
109	108	*v	378	2	2	Dec. 23	23 Jan. 21	28 Feb. 13	Mar. 13	Apr. 13
	107	vi	355	8	3	Jan. 5	28 Feb. 3		3	3
107	106	vii	355	5	3	Dec. 26	28 Jan. 24		Feb. 21	Mar. 24
106	*105	viii	355	2	3	16	28 14		11	13
105	104	*ix	378	7	2	Dec. 5	23 Jan. 3	28 Jan. 26	Feb. 23	Mar. 26
104	103	*x	378	5	2	18	23 16	28 Feb. 8	Mar. 8	Apr. 8
103	102	*xi	377	3	1	31	23 29	27 21	20	20
	*101	*xii	378	2	2	Jan. 12	23 Feb. 10	28 Mar. 4	Apr. 1	May 2
	100	xiii	356	8	4	Jan. 24	28 Feb. 22		Mar. 22	Apr. 22
	99	xiv	356	4	4	15	28 13		13	13
	98	xv	356	8	4	6	28 4		4	4
98	*97	xvi	354	4	2	Dec. 28	27 Jan. 26		Feb. 22	Mar. 24
97	96	xvii	355	2	3	Dec. 16	28 Jan. 14		Feb. 11	Mar. 14
96	95	*xviii	377	7	1	6	23 4	27 Jan. 27	23	26
95	94	xix	355	6	3	18	28 16		13	16
94	*93	*xx	377	3	1	8	23 6	27 Jan. 29	25	27
93	92	xxi	355	2	3	Dec. 19	28 Jan. 17		Feb. 14	Mar. 17
92	91	xxii	355	7	3	9	28 7		4	7
91	90	*xxiii	378	4	2	Nov. 29	23 Dec. 28	28 Jan. 20	17	20
90	*89	xxiv	355	2	3	Dec. 12	28 Jan. 10		7	9

TABLE IV. PART V.—IRREGULAR CALENDAR.

Cycle V. B. C. 113—B. C. 89.

Maius 31	Junius 29	Quinctilis 31	Sextilis 29.	September 29.	October 31.	November 29.	December 29. 30.
May 7	Jun. 7	July 6	Aug. 6	Sep. 4	Oct. 3	Nov. 3	Dec. 2
Apr. 27	May 28	Jun. 26	July 27	Aug. 25	Sep. 23	Oct. 24	Nov. 22
17	18	16	17	15	13	14	12
29	30	28	29	27	25	26	24
May 12	Jun. 12	July 11	Aug. 11	Sep. 9	Oct. 8	Nov. 8	Dec. 7
2	2	1	1	Aug. 30	Sep. 28	Oct. 29	Nov. 27
Apr. 22	May 23	Jun. 21	July 22	20	18	19	17
11	12	10	11	9	7	8	6
Apr. 24	May 25	Jun. 23	July 24	Aug. 22	Sep. 20	Oct. 21	Nov. 19
May 7	Jun. 7	July 6	Aug. 6	Sep. 4	Oct. 3	Nov. 3	Dec. 2
19	19	18	18	16	15	15	14
31	July 1	30	30	28	27	27	26
May 21	Jun. 21	July 20	Aug. 20	Sep. 18	Oct. 17	Nov. 17	30 Dec. 16
12	12	11	11	9	8	8	30 7
3	3	2	2	Aug. 31	Sep. 29	Oct. 30	30 Nov. 28
Apr. 22	May 23	Jun. 21	July 22	20	18	19	17
Apr. 12	May 13	Jun. 11	July 12	Aug. 10	Sep. 8	Oct. 9	Nov. 7
24	25	23	24	22	20	21	19
14	15	13	14	12	10	11	9
25	26	24	25	23	21	22	20
Apr. 15	May 16	Jun. 14	July 15	Aug. 13	Sep. 11	Oct. 12	Nov. 10
5	6	4	5	3	1	2	Oct. 31
18	19	17	18	16	14	15	Nov. 13
7	8	6	7	5	3	4	2

Table IV. Part VI.—Irregular Calendar.

In Annis et Mensibus expansis.

A. Ch. N.		Cycle. vi.	Sum of Days.	Nundinal Character.	Nundinal Epact	Kalendæ. Januarius 29.	Februarius 28. 23.	Merkedonius 28. 27.	Martius 31.	Aprilis 29.
89	88	*i	378	7	2	Dec. 1	23 Dec. 30	28 Jan. 22	Feb. 19	Mar. 22
88	87	ii	355	5	3	14	28 Jan. 12		9	12
87	86	*iii	378	2	2	4	23 2	28 Jan. 25	22	25
86	*85	*iv	377	8	1	17	23 15	27 Feb. 7	Mar. 5	Apr. 5
85	84	v	355	7	3	Dec. 28	28 Jan. 26		Feb. 23	Mar. 26
84	83	*vi	378	4	2	18	23 16	28 Feb. 8	Mar. 8	Apr. 8
83	82	vii	355	2	3	31	28 29		Feb. 26	Mar. 29
82	*81	*viii	378	7	2	21	23 19	28 Feb. 11	Mar. 10	Apr. 10
	80	*ix	378	5	2	Jan. 2	23 Jan. 31	28 Feb. 23	Mar. 23	Apr. 23
	79	*x	378	3	2	15	23 Feb. 13	28 Mar. 8	Apr. 5	May 6
	78	*xi	378	1	2	28	23 26	28 21	18	19
	*77	xii.	355	7	3	Feb. 10	28 Mar. 10		7	8
	76	*xiii	378	4	2	Jan. 30	23 Feb. 28	28 Mar. 23	Apr. 20	May 21
	75	xiv	355	2	3	Feb. 12	28 Mar. 13		10	11
	74	*xv	378	7	2	2	23 3	28 Mar. 26	23	24
	*73	xvi	355	5	3	15	28 15		12	13
	72	*xvii	378	2	2	Feb. 4	23 Mar. 5	28 Mar. 28	Apr. 25	May 26
	71	*xviii	378	8	2	17	23 18	28 Apr. 10	May 8	June 8
	70	xix	355	6	3	Mar. 2	28 31		Apr. 28	May 29
	*69	*xx	377	3	1	Feb. 20	23 20	27 Apr. 12	May 9	June 9
	68	xxi	355	2	3	Mar. 3	28 Apr. 1		Apr. 29	May 30
	67	*xxii	378	7	2	Feb. 21	23 Mar. 22	28 Apr. 14	May 12	June 12
	66	xxiii	355	5	3	Mar. 6	28 Apr. 4		2	2
	*65	*xxiv	378	2	2	Feb. 24	23 Mar. 24	28 Apr. 16	14	14

TABLE IV. PART VI.—IRREGULAR CALENDAR.

Cycle VI. B. C. 89—B. C. 65.

Maius 31.	Junius 29.	Quinctilis 31.	Sextilis 29.	September 29.	October 31.	November 29.	December 29.
Apr. 20	May 21	Jun. 19	July 20	Aug. 18	Sep. 16	Oct. 17	Nov. 15
10	11	9	10	8	6	7	5
23	24	22	23	21	19	20	18
May 4	Jun. 4	July 3	Aug. 3	Sep. 1	30	31	29
Apr. 24	May 25	Jun. 23	July 24	Aug. 22	Sep. 20	Oct. 21	Nov. 19
May 7	Jun. 7	July 6	Aug. 6	Sep. 4	Oct. 3	Nov. 3	Dec. 2
Apr. 27	May 28	Jun. 26	July 27	Aug. 25	Sep. 23	Oct. 24	Nov. 22
May 9	Jun. 9	July 8	Aug. 8	Sep. 6	Oct. 5	Nov. 5	Dec. 4
May 22	Jun. 22	July 21	Aug. 21	Sep. 19	Oct. 18	Nov. 18	Dec. 17
Jun. 4	July 5	Aug. 3	Sep. 3	Oct. 2	31	Dec. 1	30
17	18	16	16	15	Nov. 13	14	Jan. 12
6	7	5	5	4	2	3	1
Jun. 19	July 20	Aug. 18	Sep. 18	Oct. 17	Nov. 15	Dec. 16	Jan. 14
9	10	8	8	7	5	6	4
22	23	21	21	20	18	19	17
11	12	10	10	9	7	8	6
Jun. 24	July 25	Aug. 23	Sep. 23	Oct. 22	Nov. 20	Dec. 21	Jan. 19
July 7	Aug. 7	Sep. 5	Oct. 6	Nov. 4	Dec. 3	Jan. 3	Feb. 1
Jun. 27	July 28	Aug. 26	Sep. 26	Oct. 25	Nov. 23	Dec. 24	Jan. 22
July 8	Aug. 8	Sep. 6	Oct. 7	Nov. 5	Dec. 4	Jan. 4	Feb. 2
Jun. 28	July 29	Aug. 27	Sep. 27	Oct. 26	Nov. 24	Dec. 25	Jan. 23
July 11	Aug. 11	Sep. 9	Oct. 10	Nov. 8	Dec. 7	Jan. 7	Feb. 5
1	1	Aug. 30	Sep. 30	Oct. 29	Nov. 27	Dec. 28	Jan. 26
13	13	Sep. 11	Oct. 12	Nov. 10	Dec. 9	Jan. 9	Feb. 7

Table IV. Part VII.—Irregular Calendar.

In Annis et Mensibus expansis.

A. Ch. N.		Cycle. vii.	Sum of Days.	Nundinal Character.	Nundinal Epact	Kalendæ. Januarius 29.	Februarius 28. 27. 23.	Merkedonius 27. 28.	Martius 31.	Aprilis 29.
	64	i	355	8	3	Mar. 8	28 Apr. 6		May 4	Jun. 4
	63	*ii	378	5	2	Feb. 26	23 Mar. 27	28 Apr. 19	17	17
	62	iii	355	3	3	Mar. 11	28 Apr. 9		7	7
	*61	iv	355	8	3	Feb. 29	28 Mar. 29		Apr. 26	May 27
	60	v	354	5	2	Feb. 18	27 Mar. 19		Apr. 15	May 16
	59	vi	355	3	3	7	28 8		5	6
	58	vii	354	8	2	Jan. 28	27 Feb. 26		Mar. 25	Apr. 25
	*57	viii	355	6	3	17	28 15		14	14
	56	ix	355	3	3	Jan. 6	28 Feb. 4		Mar. 4	Apr. 4
56	55	x	354	8	2	Dec. 27	27 Jan. 25		Feb. 21	Mar. 24
55	54	xi	354	6	2	16	27 14		10	13
54	*53	xii	355	4	3	5	28 3		Jan. 31	2
53	52	*xiii	377	1	1	Nov. 24	23 Dec. 23	27 Jan. 15	Feb. 11	Mar. 14
52	51	xiv	354	8	2	Dec. 6	27 Jan. 4		Jan. 31	3
51	50	xv	354	6	2	Nov. 25	27 Dec. 24		20	Feb. 20
50	*49	xvi	354	4	2	14	27 13		9	9
49	48	xvii	354	2	2	Nov. 2	27 Dec. 1		Dec. 28	Jan. 28
48	47	xviii	354	8	2	Oct. 22	27 Nov. 20		17	17
47	46	*xix	445	6	5	11	23 9	28 Dec. 2	30	30

Annus Julianus Primus.						Kal. Jan. 31.	Kal. Feb. 29. 28.		Kal. Mart. 31.	Kal. Apr. 30.
46	*45	i	366	1	6	Dec. 30	Jan. 30		Feb. 28	Mar. 30
45	44	ii	365	3	5	Dec. 30	30		27	30

TABLE IV. PART VII.—IRREGULAR CALENDAR.

Cycle vii. B. C. 64–44.

Maius 31.	Junius 29.	Quinctilis 31.	Sextilis 29.	September 29.	October 31.	November 29.	December 29.
July 3	Aug. 3	Sep. 1	Oct. 2	Oct. 31	Nov. 29	Dec. 30	Jan. 28
16	16	14	15	Nov. 13	Dec. 12	Jan. 12	Feb. 10
6	6	4	5	3	2	2	Jan. 31
Jun. 25	July 26	Aug. 24	Sep. 24	Oct. 23	Nov. 21	Dec. 22	20
Jun. 14	July 15	Aug. 13	Sep. 13	Oct. 12	Nov. 10	Dec. 11	Jan. 9
4	5	3	3	2	Oct. 31	1	Dec. 30
May 24	Jun. 24	July 23	Aug. 23	Sep. 21	20	Nov. 20	19
13	13	12	12	10	9	9	8
May 3	Jun. 3	July 2	Aug. 2	Aug. 31	Sep. 29	Oct. 30	Nov. 28
Apr. 22	May 23	Jun. 21	July 22	20	18	19	17
11	12	10	11	9	7	8	6
Mar. 31	1	May 30	Jun. 30	July 29	Aug. 27	Sep. 27	Oct. 26
Apr. 12	May 13	Jun. 11	July 12	Aug. 10	Sep. 8	Oct. 9	Nov. 7
1	2	May 31	1	July 30	Aug. 28	Sep. 28	Oct. 27
Mar. 21	Apr. 21	20	Jun. 20	19	17	17	16
9	9	8	8	7	5	5	4
Feb. 26	Mar. 29	Apr. 27	May 28	Jun. 26	July 25	Aug. 25	Sep. 23
15	18	16	17	15	14	14	12
28	31	29	30	28	27	27	.. ..

					Kal. Inter. Priores.	Kal. Interk. Posteriores.	Kal. Dec. 29.
					[34]Sep. 25	[33] Oct. 29	Dec. 1
Kal. Maiæ 31.	Kal. Juniæ 30.	Kal. Quinct. vel Juliæ 31.	Kal. Sext. sive Aug. 31.	Kal. Sept. 30.	Kal. Oct. 31.	Kal. Nov. 30.	Kal. Dec. 31.
Apr. 29	May 30	Jun. 29	July 30	Aug. 30	Sep. 29	Oct. 30	Nov. 29
29	30	29	30	30	29	30	29

Table V.

First year of the Julian Correction, in the Roman style, *in Mensibus et Diebus expansis,* shewing the proportion of the Roman to the Julian Kalends U. C. 709 B. C. 46—B. C. 45. Also the division and length of the month of December in irregular years of 366 days.

Dies.	Januarius 31.	Julian.	Februarius 28 or 29.	Julian.	Martius 31.	Julian.	Aprilis 30.	Julian.	Maius 31.	Julian.	Junius 30.	Julian.
1	Kalendæ	Dec. 30	Kalendæ	Jan. 30	Kalendæ	Feb. 28	Kalendæ	Mar. 30	Kalendæ	Apr. 29	Kalendæ	May 3
2	iv Nonas	31	iv Nonas	31	vi Non.	29	iv Nonas	31	vi Nonas	30	iv Nonas	31
3	iii	Jan. 1	iii	Feb. 1	v	Mar. 1	iii	Apr. 1	v	May 1	iii	June 1
4	Prid.Non.	2	Prid.Non.	2	iv	2	Prid.Non.	2	iv	2	Prid.Non.	2
5	Nonæ	3	Nonæ	3	iii	3	Nonæ	3	iii	3	Nonæ	3
6	viii Idus	4	viii Idus	4	Prid.Non.	4	viii Idus	4	Prid.Non.	4	viii Idus	4
7	vii	5	vii	5	Nonæ	5	vii	5	Nonæ	5	vii	5
8	vi	6	vi	6	viii Idus	6	vi	6	viii Idus	6	vi	6
9	v	7	v	7	vii	7	v	7	vii	7	v	7
10	iv	8	iv	8	vi	8	iv	8	vi	8	iv	8
11	iii	9	iii	9	v	9	iii	9	v	9	iii	9
12	Prid. Idus	10	Prid. Idus	10	iv	10	Prid.Idus	10	iv	10	Prid. Idus	10
13	Idus	11	Idus	11	iii	11	Idus	11	iii	11	Idus	11
14	xix Kal.	12	xvi Kal.	12	Prid. Idus	12	xviii Kal.	12	Prid. Idus	12	xviii Kal.	12
15	xviii	13	xv	13	Idus	13	xvii	13	Idus	13	xvii	13
16	xvii	14	xiv	14	xvii Kal.	14	xvi	14	xvii Kal.	14	xvi	14
17	xvi	15	xiii	15	xvi	15	xv	15	xvi	15	xv	15
18	xv	16	xii	16	xv	16	xiv	16	xv	16	xiv	16
19	xiv	17	xi	17	xiv	17	xiii	17	xiv	17	xiii	17
20	xiii	18	x	18	xiii	18	xii	18	xiii	18	xii	18
21	xii	19	ix	19	xii	19	xi	19	xii	19	xi	19
22	xi	20	viii	20	xi	20	x	20	xi	20	x	20
23	x	21	vii	21	x	21	ix	21	x	21	ix	21
24	ix	22	vi	22	ix	22	viii	22	ix	22	viii	22
25	viii	23	Bissex	23	viii	23	vii	23	viii	23	vii	23
26	vii	24	v	24	vii	24	vi	24	vii	24	vi	24
27	vi	25	iv	25	vi	25	v	25	vi	25	v	25
28	v	26	iii	26	v	26	iv	26	v	26	iv	26
29	iv	27	Prid. Kal.	27	iv	27	iii	27	iv	27	iii	27
30	iii	28			iii	28	Prid. Kal.	28	iii	28	Prid. Kal.	28
31	Prid. Kal.	29			Prid. Kal.	29			Prid. Kal.	29		
32												

TABLE V.

First year of the Julian Correction, in the Roman style, *in Mensibus et Diebus expansis*, shewing the proportion of the Roman to the Julian Kalends U. C. 709 B. C. 46—B. C. 45. Also the division and length of the month of December in irregular years of 366 days.

Julius 31.		Augustus 31.		September 30.		October 31.		November 30.		December 31.		December 32.
	Julian.		Julian.		Julian.		Julian.		Julian.		Julian.	
Kalend.	Jun. 29	Kalend.	July 30	Kalend.	Aug. 30	Kalend.	Sep. 29	Kalend.	Oct. 30	Kalend.	Nov. 29	Kalend.
iv Non.	30	iv Non.	31	iv Non.	31	vi Non.	30	iv Non.	31	iv Non.	30	iv Non.
v	July 1	iii	Aug. 1	iii	Sept. 1	v	Oct. 1	iii	Nov. 1	iii	Dec. 1	iii
iv	2	Pr. Non.	2	Pr. Non.	2	iv	2	Pr. Non.	2	Pr. Non.	2	Pr. Non.
iii	3	Nonæ	3	Nonæ	3	iii	3	Nonæ	3	Nonæ	3	Nonæ
Pr. Non.	4	viii Idus	4	viii Idus	4	Pr. Non.	4	viii Idus	4	viii Idus	4	viii Idus
Nonæ	5	vii	5	vii	5	Nonæ	5	vii	5	vii	5	vii
viii Idus	6	vi	6	vi	6	viii Idus	6	vi	6	vi	6	vi
vii	7	v	7	v	7	vii	7	v	7	v	7	v
vi	8	iv	8	iv	8	vi	8	iv	8	iv	8	iv
v	9	iii	9	iii	9	v	9	iii	9	iii	9	iii
iv	10	Pr. Idus	10	Pr. Idus	10	iv	10	Pr. Idus	10	Pr. Idus	10	Pr. Idus
iii	11	Idus	11	Idus	11	iii	11	Idus	11	Idus	11	Idus
Pr. Idus	12	xix Kal.	12	xviii Kal.	12	Pr. Idus	12	xviii Kal.	12	xix Kal.	12	xix Kal.
Idus	13	xviii	13	xvii	13	Idus	13	xvii	13	xviii	13	xviii
xvii Kal.	14	xvii	14	xvi	14	xvii Kal.	14	xvi	14	xvii	14	xvii
xvi	15	xvi	15	xv	15	xvi	15	xv	15	xvi	15	xvi
xv	16	xv	16	xiv	16	xv	16	xiv	16	xv	16	xv
xiv	17	xiv	17	xiii	17	xiv	17	xiii	17	xiv	17	xiv
xiii	18	xiii	18	xii	18	xiii	18	xii	18	xiii	18	xiii
xii	19	xii	19	xi	19	xii	19	xi	19	xii	19	xii
xi	20	xi	20	x	20	xi	20	x	20	xi	20	xi
x	21	x	21	ix	21	x	21	ix	21	x	21	x
ix	22	ix	22	viii	22	ix	22	viii	22	ix	22	ix
viii	23	viii	23	vii	23	viii	23	vii	23	viii	23	viii
vii	24	vii	24	vi	24	vii	24	vi	24	vii	24	vii
vi	25	vi	25	v	25	vi	25	v	25	vi	25	vi
v	26	v	26	iv	26	v	26	iv	26	v	26	v
iv	27	iv	27	iii	27	iv	27	iii	27	iv	27	iv
iii	28	iii	28	Pr. Kal.	28	iii	28	Pr. Kal.	28	iii	28	iii
Pr. Kal.	29	Pr. Kal.	29			Pr. Kal.	29			Pr. Kal.	29	Pr. Kal.
											30	Bis Pr. Kal.

TABLE VI.—Nundinal Characters of the Months in the Roman Calendar, as dependent on that of the first Month.

i. Calendar of Romulus.

Year of 304 days.

	Days.	Nundinal.	
Martius	31	Martii	1
Aprilis	29	Aprilis	2
Maius	31	Maii	5
Junius	29	Junii	6
Quinctilis	31	Quinctilis	1
Sextilis	29	Sextilis	2
September	32	Septembris	5
October	30	Octobris	5
November	32	Novembris	7
December	30	Decembris	7

ii. Calendar of Numa.

Year of 355, 378, or 377 days.

	Days.	Nundinal.							
Januarius	29	1	2	3	4	5	6	7	8
Martius	31	4	5	6	7	8	1	2	3
Aprilis	29	5	6	7	8	1	2	3	4
Maius	31	8	1	2	3	4	5	6	7
Junius	29	1	2	3	4	5	6	7	8
Quinctilis	31	4	5	6	7	8	1	2	3
Sextilis	29	5	6	7	8	1	2	3	4
September	29	8	1	2	3	4	5	6	7
October	31	3	4	5	6	7	8	1	2
November	29	4	5	6	7	8	1	2	3
December	29	7	8	1	2	3	4	5	6
Februarius	28	2	3	4	5	6	7	8	1
	23	2	3	4	5	6	7	8	1
Merkedonius	28	3	4	5	6	7	8	1	2
	27	3	4	5	6	7	8	1	2

iii. Decemviral or Irregular Calendar.

Year of 355 or 356 days.

	Days.	Nundinal.							
Januarius	29	1	2	3	4	5	6	7	8
Februarius	28	4	5	6	7	8	1	2	3
Martius	31	8	1	2	3	4	5	6	7
Aprilis	29	1	2	3	4	5	6	7	8
Maius	31	4	5	6	7	8	1	2	3
Junius	29	5	6	7	8	1	2	3	4
Quinctilis	31	8	1	2	3	4	5	6	7
Sextilis	29	1	2	3	4	5	6	7	8
September	29	4	5	6	7	8	1	2	3
October	31	7	8	1	2	3	4	5	6
November	29	8	1	2	3	4	5	6	7
December	29	3	4	5	6	7	8	1	2
	30	3	4	5	6	7	8	1	2

iv. Irregular Calendar.

Year of 354 days.

	Days.	Nundinal.							
Januarius	29	1	2	3	4	5	6	7	8
Februarius	27	4	5	6	7	8	1	2	3
Martius	31	1	2	3	4	5	6	7	8
Aprilis	29	2	3	4	5	6	7	8	1
Maius	31	5	6	7	8	1	2	3	4
Junius	29	6	7	8	1	2	3	4	5
Quinctilis	31	1	2	3	4	5	6	7	8
Sextilis	29	2	3	4	5	6	7	8	1
September	29	5	6	7	8	1	2	3	4
October	31	8	1	2	3	4	5	6	7
November	29	1	2	3	4	5	6	7	8
December	29	4	5	6	7	8	1	2	3

TABLE VI.—Nundinal Characters of the Months in the Roman Calendar, as dependent on that of the first Month.

v. Decemviral or Irregular Calendar.
Year of 378 days.

	Days.	Nundinal.							
Januarius	29	1	2	3	4	5	6	7	8
Februarius	23	4	5	6	7	8	1	2	3
Merkedonius	28	5	6	7	8	1	2	3	4
Martius	31	1	2	3	4	5	6	7	8
Aprilis	29	2	3	4	5	6	7	8	1
Maius	31	5	6	7	8	1	2	3	4
Junius	29	6	7	8	1	2	3	4	5
Quinctilis	31	1	2	3	4	5	6	7	8
Sextilis	29	2	3	4	5	6	7	8	1
September	29	5	6	7	8	1	2	3	4
October	31	8	1	2	3	4	5	6	7
November	29	1	2	3	4	5	6	7	8
December	29	4	5	6	7	8	1	2	3

vi. Decemviral or Irregular Calendar.
Year of 377 days.

	Days.	Nundinal.							
Januarius	29	1	2	3	4	5	6	7	8
Februarius	23	4	5	6	7	8	1	2	3
Merkedonius	27	5	6	7	8	1	2	3	4
Martius	31	2	3	4	5	6	7	8	1
Aprilis	29	3	4	5	6	7	8	1	2
Maius	31	6	7	8	1	2	3	4	5
Junius	29	7	8	1	2	3	4	5	6
Quinctilis	31	2	3	4	5	6	7	8	1
Sextilis	29	3	4	5	6	7	8	1	2
September	29	6	7	8	1	2	3	4	5
October	31	1	2	3	4	5	6	7	8
November	29	2	3	4	5	6	7	8	1
December	29	5	6	7	8	1	2	3	4

vii. Julian Correction.

i. Common year of 365 days or irregular leap-year of 366 days.
Leap-day at the end of December.

	Days.	Nundinal.							
Januarius	31	1	2	3	4	5	6	7	8
Februarius	28	2	3	4	5	6	7	8	1
Martius	31	6	7	8	1	2	3	4	5
Aprilis	30	7	8	1	2	3	4	5	6
Maius	31	1	2	3	4	5	6	7	8
Junius	30	2	3	4	5	6	7	8	1
Julius	31	4	5	6	7	8	1	2	3
Augustus	31	5	6	7	8	1	2	3	4
September	30	6	7	8	1	2	3	4	5
October	31	8	1	2	3	4	5	6	7
November	30	1	2	3	4	5	6	7	8
December	31	3	4	5	6	7	8	1	2
December	32	3	4	5	6	7	8	1	2

ii. Leap-year of 366 days.
Leap-day in February.

	Days.	Nundinal.							
Januarius	31	1	2	3	4	5	6	7	8
Februarius	29	2	3	4	5	6	7	8	1
Martius	31	5	6	7	8	1	2	3	4
Aprilis	30	6	7	8	1	2	3	4	5
Maius	31	8	1	2	3	4	5	6	7
Junius	30	1	2	3	4	5	6	7	8
Julius	31	3	4	5	6	7	8	1	2
Augustus	31	4	5	6	7	8	1	2	3
September	30	5	6	7	8	1	2	3	4
October	31	7	8	1	2	3	4	5	6
November	30	8	1	2	3	4	5	6	7
December	31	2	3	4	5	6	7	8	1

Table VII.

Type of the year of Numa, whether of 355, or of 378, or of 377 days, *in Mensibus et Diebus expansis*, in the Roman style.

Dies.	Januarius 29.	Martius 31.	Aprilis 29.	Maius 31.	Junius. 29.	Quinctilis 31.	Sextilis 29.
1	Kalendæ	Kalendæ	Kalendæ	Kalendæ	Kalendæ	Kalendæ	Kalendæ
2	iv Non.	vi Nonas	iv Nonas	vi Nonas	iv Nonas	vi Nonas	iv Nonas
3	iii	v	iii	v	iii	v	iii
4	Pridie Non.	iv	Prid. Non.	iv	Pridie Non.	iv	Pridie Non.
5	Nonæ	iii	Nonæ	iii	Nonæ	iii	Nonæ
6	viii Idus	Pridie Non.	viii Idus	Pridie Non.	viii Idus	Pridie Non.	viii Idus
7	vii	Nonæ	vii	Nonæ	vii	Nonæ	vii
8	vi	viii Idus	vi	viii Idus	vi	viii Idus	vi
9	v	vii	v	vii	v	vii	v
10	iv	vi	iv	vi	iv	vi	iv
11	iii	v	iii	v	iii	v	iii
12	Pridie Id.	iv	Pridie Idus	iv	Pridie Idus	iv	Pridie Idus
13	Idus	iii	Idus	iii	Idus	iii	Idus
14	xvii Kal.	Pridie Idus	xvii Kal.	Pridie Idus	xvii Kal.	Pridie Idus	xvii Kal.
15	xvi	Idus	xvi	Idus	xvi	Idus	xvi
16	xv	xvii Kalend.	xv	xvii Kal.	xv	xvii Kal.	xv
17	xiv	xvi	xiv	xvi	xiv	xvi	xiv
18	xiii	xv	xiii	xv	xiii	xv	xiii
19	xii	xiv	xii	xiv	xii	xiv	xii
20	xi	xiii	xi	xiii	xi	xiii	xi
21	x	xii	x	xii	x	xii	x
22	ix	xi	ix	xi	ix	xi	ix
23	viii	x	viii	x	viii	x	viii
24	vii	ix	vii	ix	vii	ix	vii
25	vi	viii	vi	viii	vi	viii	vi
26	v	vii	v	vii	v	vii	v
27	iv	vi	iv	vi	iv	vi	iv
28	iii	v	iii	v	iii	v	iii
29	Prid. Kal.	iv	Pridie Kal.	iv	Pridie Kal.	iv	Pridie Kal.
30		iii		iii		iii	
31		Pridie Kal.		Pridie Kal.		Pridie Kal.	

TABLE VII.

Type of the year of Numa, whether of 355, or of 378, or of 377 days, *in Mensibus et Diebus expansis*, in the Roman style.

September 29.	October 31.	November 29.	December 29.	Februarius 28.	Februarius 23.	Mensis Interkalarius. Merkedonius 28.	Mensis Interkalarius. Merkedonius 27.
Kalendæ	Kalendæ	Kalendæ	Kalendæ	Kalendæ	Kalendæ	Kal. Interk.	Kal. Interk.
iv Nonas	vi Nonas	iv Nonas	iv Nonas	iv Nonas	iv Nonas	iv Non. Int.	iv Non. Int.
iii	v	iii	iii	iii	iii	iii	iii
Pridie Non.	iv	Pridie Non.	Pridie Non.	Pridie Non.	Pridie Non.	Pr. Non. Int.	Pr. Non. Int.
Nonæ	iii	Nonæ	Nonæ	Nonæ	Nonæ	Non. Interk.	Non. Interk.
viii Idus	Pridie Non.	viii Idus	viii Idus	viii Idus	viii Idus	viii Id. Int.	viii Id. Int.
vii	Nonæ	vii	vii	vii	vii	vii	vii
vi	viii Idus	vi	vi	vi	vi	vi	vi
v	vii	v	v	v	v	v	v
iv	vi	iv	iv	iv	iv	iv	iv
iii	v	iii	iii	iii	iii	iii	iii
Pridie Idus	iv	Pridie Idus	Pridie Idus	Pridie Idus	Pridie Idus	Prid. Id. Int.	Prid. Id. Int.
Idus	iii	Idus	Idus	Idus	Idus	Idus Interk.	Idus Interk.
xvii Kal.	Pridie Idus	xvii Kal.	xvii Kal.	xvi Kal.	xi Kal.	xvi Kal.	xv Kal.
xvi	Idus	xvi	xvi	xv	x	xv	xiv
xv	xvii Kal.	xv	xv	xiv	ix	xiv	xiii
xiv	xvi	xiv	xiv	xiii	viii	xiii	xii
xiii	xv	xiii	xiii	xii	vii	xii	xi
xii	xiv	xii	xii	xi	vi	xi	x
xi	xiii	xi	xi	x	v	x	ix
x	xii	x	x	ix	iv	ix	viii
ix	xi	ix	ix	viii	iii	viii	vii
viii	x	viii	viii	vii	Pridie Kal.	vii	vi
vii	ix	vii	vii	vi		vi	v
vi	viii	vi	vi	v		v	iv
v	vii	v	v	iv		iv	iii
iv	vi	iv	iv	iii		iii	Pridie Kal.
iii	v	iii	iii	Pridie Kal.		Pridie Kal.	
Pridie Kal.	iv	Pridie Kal.	Pridie Kal.				
	iii						
	Pridie Kal.						

Table VIII.

Type of the year of the Decemviral Calendar, or of the Irregular Calendar, whether of 355, or of 356, or of 354, or of 378, or of 377 days, *in Mensibus et Diebus expansis*, in the Roman style.

Dies.	Januarius 29.	Februarius 28.	Februarius 27.	Februarius 23.	Merkedonius 28.	Merkedonius 27.	Martius 31.	Aprilis 29.
1	Kalendæ	Kalendæ	Kalendæ	Kalendæ	Kal. Interk.	Kal. Interk.	Kalendæ	Kalendæ
2	iv Nonas	iv Nonas	iv Nonas	iv Nonas	iv Non. Int.	iv Non. Int.	vi Nonas	iv Nonas
3	iii	iii	iii	iii	iii	iii	v	iii
4	Prid. Nonas	Pridie Non.	Pridie Non.	Pridie Non.	Pr.Non.Int.	Pr.Non.Int.	iv	Pridie Non.
5	Nonæ	Nonæ	Nonæ	Nonæ	Nonæ Int.	Nonæ Int.	iii	Nonæ
6	viii Idus	viii Idus	viii Idus	viii Idus	viii Id. Int.	viii Id. Int.	Pridie Non.	viii Idus
7	vii	vii	vii	vii	vii	vii	Nonæ	vii
8	vi	vi	vi	vi	vi	vi	viii Idus	vi
9	v	v	v	v	v	v	vii	v
10	iv	iv	iv	iv	iv	iv	vi	iv
11	iii	iii	iii	iii	iii	iii	v	iii
12	Pridie Idus	Pridie Idus	Pridie Idus	Pridie Idus	Prid. Id. Int.	Prid. Id. Int.	iv	Pridie Idus
13	Idus	Idus	Idus	Idus	Idus Inter.	Idus Interk.	iii	Idus
14	xvii Kalend.	xvi Kalend.	xv Kalend.	xi Kalendas	xvi Kalend.	xv Kalend.	Pridie Idus	xvii Kalend.
15	xvi	xv	xiv	x	xv	xiv	Idus	xvi
16	xv	xiv	xiii	ix	xiv	xiii	xvii Kalend.	xv
17	xiv	xiii	xii	viii	xiii	xii	xvi	xiv
18	xiii	xii	xi	vii	xii	xi	xv	xiii
19	xii	xi	x	vi	xi	x	xiv	xii
20	xi	x	ix	v	x	ix	xiii	xi
21	x	ix	viii	iv	ix	viii	xii	x
22	ix	viii	vii	iii	viii	vii	xi	ix
23	viii	vii	vi	Pridie Kal.	vii	vi	x	viii
24	vii	vi	v		vi	v	ix	vii
25	vi	v	iv		v	iv	viii	vi
26	v	iv	iii		iv	iii	vii	v
27	iv	iii	Pridie Kal.		iii	Pridie Kal.	vi	iv
28	iii	Pridie Kal.			Pridie Kal.		v	iii
29	Prid. Kal.						iv	Pridie Kal.
30							iii	
31							Pridie Kal.	

TABLE VIII.

Type of the year of the Decemviral Calendar, or of the Irregular Calendar, whether of 355, or of 356, or of 354, or of 378, or of 377 days, *in Mensibus et Diebus expansis*, in the Roman style.

Maius 31.	Junius 29.	Quinctilis 31.	Sextilis 29.	September 29.	October 31.	November 29.	December 29 or 30.	
Kalendæ	Kalendæ	Kalendæ	Kalendæ	Kalendæ	Kalendæ	Kalendæ	Kalendæ	Kalendæ
vi Nonas	iv Nonas	vi Nonas	iv Nonas	iv Nonas	vi Nonas	iv Nonas	iv Nonas	iv Nonas
v	iii	v	iii	iii	v	iii	iii	iii
iv	Pridie Non.	iv	Pridie Non.	Pridie Non.	iv	Pridie Non.	Pr. Non.	Pr. Non.
iii	Nonæ	iii	Nonæ	Nonæ	iii	Nonæ	Nonæ	Nonæ
Pridie Non.	viii Idus	Pridie Non.	viii Idus	viii Idus	Pridie Non.	viii Idus	viii Idus	viii Idus
Nonæ	vii	Nonæ	vii	vii	Nonæ	vii	vii	vii
viii Idus	vi	viii Idus	vi	vi	viii Idus	vi	vi	vi
vii	v	vii	v	v	vii	v	v	v
vi	iv	vi	iv	iv	vi	iv	iv	iv
v	iii	v	iii	iii	v	iii	iii	iii
iv	Pridie Idus	iv	Pridie Idus	Pridie Idus	iv	Pridie Idus	Prid. Id.	Prid. Id.
iii	Idus	iii	Idus	Idus	iii	Idus	Idus	Idus
Pridie Idus	xvii Kalend.	Pridie Idus	xvii Kalend.	xvii Kalend.	Pridie Idus	xvii Kalend.	xvii Kal.	xviii Kal.
Idus	xvi	Idus	xvi	xvi	Idus	xvi	xvi	xvii
xvii Kalend.	xv	xvii Kalend.	xv	xv	xvii Kalend.	xv	xv	xvi
xvi	xiv	xvi	xiv	xiv	xvi	xiv	xiv	xv
xv	xiii	xv	xiii	xiii	xv	xiii	xiii	xiv
xiv	xii	xiv	xii	xii	xiv	xii	xii	xiii
xiii	xi	xiii	xi	xi	xiii	xi	xi	xii
xii	x	xii	x	x	xii	x	x	xi
xi	ix	xi	ix	ix	xi	ix	ix	x
x	viii	x	viii	viii	x	viii	viii	ix
ix	vii	ix	vii	vii	ix	vii	vii	viii
viii	vi	viii	vi	vi	viii	vi	vi	vii
vii	v	vii	v	v	vii	v	v	vi
vi	iv	vi	iv	iv	vi	iv	iv	v
v	iii	v	iii	iii	v	iii	iii	iv
iv	Pridie Kal.	iv	Pridie Kal.	Pridie Kal.	iv	Pridie Kal.	Pr. Kal.	iii
iii		iii			iii			Prid. Kal.
Pridie Kal.		Pridie Kal.			Pridie Kal.			

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FASTI TEMPORIS CATHOLICI AND ORIGINES KALENDARIÆ. In four volumes. General Tables of the Fasti Catholici, or Fasti Temporis Perpetui, from B. C. 4004 to A. D. 2000. In one vol. 4to. Introduction to the Tables of the Fasti Catholici, both the General and the Supplementary. In one vol. 8vo. Oxford, at the University Press. M.DCCC.LII.

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ORIGINES KALENDARIÆ ITALICÆ.

ON THE CALENDARS OF ANCIENT ITALY.

DISSERTATION XIX.

On the Julian Correction.

CHAPTER I.

SECTION I.—*On the date of the Correction, or the year of the Vulgar Æra which coincided with that of the Correction.*

THE nature of that particular form of the civil reckoning of noctidiurnal and annual time which is known by the name of the Julian Calendar, the construction of this calendar, and the laws or rules by which its administration is regulated perpetually, are no doubt too familiar to our readers at present to require any explanation on their account. But the case was different with the contemporaries of Julius Cæsar, the author of the Correction at Rome. It is probable that to all of them, without exception, the Julian calendar, at its first introduction into use, was as new as it was interesting. Proposing as *we* do to give an account of this Correction in its proper place and order in the history of the Roman calendar from first to last; we must begin with inquiring into the mode and process by which it was carried into effect; and by which the Julian calendar was introduced and established in the room of the old Roman calendar: and if our purpose

cannot be otherwise attained we must beg leave of our readers to treat the Julian Correction itself as if it were still something as new and unheard of as at first. And in fact, though every one may be familiar with the practical use and application of the Correction, (i. e. with the actual administration of the Julian calendar, as supposed to have been subject to one and the same rule from the first, and one altogether the same as that which is observed at present, or was so down to the date of the Gregorian correction,) the steps of the process by which it was brought into existence at Rome are known only to the learned; and possibly not even to all of them, if their inquiries have not been expressly directed to this subject.

The date of this correction of the Roman calendar by Julius Cæsar is one of those few points in ancient history and chronology which do not admit of a question. There can be no doubt that this reformation of the civil reckoning of annual time at Rome was one of the transactions of the consular year of Caius Julius Cæsar iii and Marcus Æmilius Lepidus; corresponding in the Varronian Æra to U. C. 708 ex Kalendis Januariis, or January 1 Roman, at midnight, and in the Æra Vulgaris, or annual reckoning of time before Christ, circumscribed by October 11 at midnight B. C. 47 and December 30 at midnight B. C. 46. The end of the preceding consular year (U. C. 707) and the beginning of this are noticed by Dio [p] in their proper order of time. For the first part of this year, as we have seen, Cæsar himself was absent from Rome, and in Africa; but for the latter part, and during the process of the Correction properly so called, he was at Rome in person. He was at Lilybæum in Sicily on his way to Africa, on the xiv Kal. Januarias U. C. 706 September 28 B. C. 47. He left Utica on his return from Africa on the Ides of June U. C. 707 April 12 B. C. 46. He arrived at Caralis in Sardinia on the xvi Kalendas Quinctiles April 14; and at Rome on the vii Kalendas Sextiles May 24: and he was still there, as we have seen reason to conclude, celebrating his four triumphs, from June 28 to July 22 [q].

The business of the Correction, it is to be presumed, must have been begun before this time; nor can there be any

[p] xlii. 55: xliii. 1.

[q] Vide Vol. iii. page 520.

doubt that one part of the process, the intercalation of the ordinary Merkedonius and in the ordinary place of that month in the calendar, had already taken place. But the most important part of the whole had still to be transacted; and Cæsar returned to Rome in time to superintend that in person. A letter of Cicero's is extant, dated a. d. v Kalendas Interkalares priores; and Cæsar was then at Rome. It would be absurd to refer that date to the Kalends of the ordinary Merkedonius; 61 days later than the xiv Kalendas Januarias U. C. 706, when Cæsar was at Lilybæum on his way to Africa, and 68 days before the viii Idus Apriles U. C. 707, the date of the battle of Thapsus, when he was certainly still in Africa.

The first Julian year therefore, (the first year of the Julian æra properly so called,) was the next to this of U. C. 708 B. C. 47–46; i. e. U. C. 709 B. C. 46–45. Ex hoc anno ita a Julio Cæsare ordinato ceteri ad nostram memoriam Juliani adpellantur: iique consurgunt ex iv° Cæsaris consulatu[r] (U. C. 709). Censorinus adds, in another reference to the same thing, Ex die Kalendis Januariis unde Julius Cæsar anni a se constituti fecit principium[s]: and that is an important distinction. The Roman reckoning of annual time by this æra and according to the Julian rule must necessarily bear date from the Kalends of January in the first year of the æra itself; but whether the first Kalends of January in the Julian æra really coincided with January 1 B. C. 45, or with some other Julian day B. C. 46, is a question which we reserve for future consideration.

SECTION II.—*On the final end of the Julian Correction, or the objects proposed thereby.* i. *Rectification of the existing disorder of the Calendar.*

The primary and immediate object of the Julian Correction was no doubt to rectify the disorder existing in the Calendar at the time; and thereby to remove a state of things of long standing and of great practical inconvenience: and this in fact is the moving cause generally assigned it by the ancients. The nature of this disorder determined the mode in which only it could be rectified. The anomaly existing in the

[r] Censorinus, De Die Natali, xx. [s] Ibid. xxi.

reckoning of civil annual time was such as consisted in an error of defect, not of excess. The months of the calendar had fallen back (not advanced) on their proper places relatively to the natural year; so that the remedy which the occasion required was not the abstraction of a certain number of days from the ordinary length of the civil year, but the addition of a certain number to it. The only question for consideration would be about the proper number; and where to insert them most appropriately and conveniently: preliminary to both which considerations it would be necessary to ascertain the cardinal points of the natural in terms of the existing civil year. Nor can there be any doubt that, long before the actual administration of the Correction was taken in hand, this part of the process preparatory to it had been completed under the superintendence of the astronomers of the day, to whom Cæsar entrusted it. These points having been determined, and in terms of the calendar as it stood at the time; the amount of the defect in the existing civil reckoning of annual time on the natural, and the consequent magnitude of the compensation necessary to remedy and redress it, admitted of being easily calculated.

The true dates of these cardinal points in the first Julian year will require to be considered hereafter. The question at present is that of the actual amount of the extra intercalation in the year of the Correction (commonly called the year of confusion); and this must be treated as simply historical, and one which is to be decided by testimony. According to Suetonius[t] the year of confusion contained three *extra* months; one the ordinary Merkedonius, the other two extraordinary of their kind: but, whether called by the name of Merkedonii also or not, we do not know. According to Censorinus[u] these two months *extra ordinem* contained between them *sixty-seven* days. According to Dio Cassius[w] *sixty-seven* was the total number of days introduced into this year over and above its proper complement; and though this statement appears to be at variance with that of Censorinus, and virtually with the testimony of Suetonius also, it may not in reality be inconsistent with either, if at least Dio intended it of the two intercalary months which made part of

[t] Julius Cæsar, xl. 3. [u] De Die Nat. xx. [w] xliii. 26.

the year of the Correction over and above the regular Merkedonius. And it is evident that he might so intend it; or rather that if he was speaking with a deliberate regard to propriety he must have so intended it. For that which really distinguished the year of confusion from any other in the Roman calendar, down to its own time and place in the common succession of all, was these two extra intercalary months, and not the ordinary Merkedonius. The ordinary Merkedonius doubtless contributed in its proper proportion to the common effect of the three; but it was not more peculiar to the year of the Correction than to any other before it. Besides, Dio appears to be speaking in this instance of the number of days actually introduced into the calendar not only for an extraordinary purpose but also by Cæsar himself; and Cæsar himself could have introduced none but these two extra months. The ordinary Merkedonius had been introduced in his absence; and, as Suetonius tells us expressly, in the regular course of things.

It is agreed however that these different intercalations of such and such a number of additional days did not take place at once; but at distinct intervals of time. The first was that of the regular Merkedonius, Qui ex consuetudine eum annum inciderat[x]: and its place was the usual one in Februarius; and its length was the stated amount of the Merkedonius: which might indeed have been either 22 days or 23 days, agreeably to rule in such cases, but in this particular instance as Censorinus informs us[y] was *de facto* 23 days long, not 22. The second and the third of these intercalary months have not been mentioned any where under a proper name. Cicero[z] gives us reason to infer that the first must have been styled *Mensis interkalarius prior*: and consequently (as we may conclude from analogy) the second *Mensis interkalarius posterior*. Both Suetonius[x] and Censorinus[y] agree that they were inserted between November and December (on which coincidence we had occasion to make a remark not long since[a]); and if they contained together 67 days in all we may consider it extremely probable that one of them must have had 34 days and the other 33: though in what order we could not undertake to say for certain.

[x] Suetonius, loc. cit. [y] Loc. cit. [z] Ad Fam. vi. 14. [a] Vol. iii. 525.

It follows that the length of this particular year in the Roman calendar of the time being, as consisting of 67 days over and above the ordinary intercalary year of 378 days, must have been 445 days. And it is so represented by Censorinus[b]; though Macrobius[c] states it at 443 days, and Solinus[d] at 344 days. In this latter instance the numbers are no doubt corrupt; and the corruption is probably to be traced to the accidental confusion of ccccxliv in the Roman notation with cccxliv. Solinus' statement therefore will differ from Censorinus' by one day, and Macrobius' will differ from it by two days; and, though there can be no question that Censorinus' alone is agreeable to the actual truth of the case, it would not follow from that fact that each of the others might not have been deliberately made: nor that a probable reason might not be assigned for its differing from that of Censorinus, as far as the difference extends. Solinus' statement would be accounted for, if he assumed the length of the ordinary Merkedonius at 22 days instead of 23. As to Macrobius', the difference between his statement and Censorinus' is two days; and that was also the difference between the Kalends of January, in the first Julian year, and the first of January, in the corresponding Julian year. In Macrobius' time the Julian Correction of the dictator Cæsar and the Julian year of chronology had long been the same; and it might very well be supposed that they had never been different. If then the difference of Macrobius' statement on this point from Censorinus' is not to be explained by some possible error in the reading of his text at present; perhaps it may be accounted for on *this* principle, of his having assumed the epoch of the first Julian year January 1 U. C. 709 and B. C. 45, and calculated the length of the year of confusion by reckoning back from that: though we do not undertake to say that even this explanation will account for it altogether. Nor in fact is it necessary that we should concern ourselves with its explanation in any manner soever; so long at least as it is certain that Censorinus' statement on the same point alone can express the truth.

[b] De Die Nat. xx. [c] Saturnalia, i. 14. 268. [d] i. 45.

ii. *The substitution of a solar year for the preexisting lunar one.*

After the rectification of the existing disorder of the calendar, the next object no doubt would be to prevent the recurrence of the same state of things. For this purpose the irregular calendar must necessarily be discarded; and a regular one of some kind or other must be substituted in its stead. The calendar of Numa and that of the Decemvirs were both regular of their kind; and, though they had long been laid aside, yet there is little doubt, in our opinion, that had it been considered expedient to revive either of them, and in particular that of the Decemvirs, it might have been recovered in its integrity, and brought into use again, even in Cæsar's time, exactly as it was at first. But each of these calendars was nominally lunar; and it was not thought advisable to restore the lunar calendar in any shape: for experience had shewn that the intercalary system, indispensable to a lunar calendar, was too liable to be abused, to be trusted to again with confidence as a perpetual safeguard and guarantee for the good order and regularity of the administration of time.

The determination then to supersede the old lunar calendar by one of a different kind having been previously come to, the only question would be about the mode of carrying it into effect; and whether the new calendar might not be derivable from the old with little or no violence to its existing constitution and details: or whether the new calendar might not be so grafted on the old that the latter might appear to have passed into the former almost without any change in its external form. The kind of year which Cæsar was proposing to substitute for the old lunar year of the calendar was the solar; and there were two forms of the solar year, with each of which he must have become familiar, if no where else before, yet during his sojourn in Egypt, B. C. 48–47: the equable solar year of 365 days and nights perpetually, and the mean Julian year of 365 days six hours annually, or of 365 days every three years, and of 366 days every fourth. The equable solar year would not have answered the purpose of the Correction, except in the form of the Cyclico-

Julian period of 120 years; which for that length of time appears to be subject to the laws of the simple equable solar year, and then at the end of that time is redressed and corrected on the principles of the mean Julian year: and is thereby shewn to be in reality a particular form of the mean Julian year, though externally and in appearance, at any other time but this of the correction, Cyclical. And though, as we have already observed, it is far from improbable that *this* was the kind of correction of the Roman calendar which Cæsar might have contemplated when he returned from Bithynia; circumstances, over which he had no control, had effectually prevented his carrying it into execution, before he was taken after the battle of Pharsalia, and by the pursuit of Pompey, into Egypt. It is no wonder that during his eight months' residence in that country, where many varieties of the simple Julian year were even then simultaneously in existence, he acquired clearer and more distinct ideas on this subject; and in particular on that of the relation of the mean Julian to the mean natural year, which in his own Correction at last was assumed to be one of absolute equality: from which assumption it must be a necessary and obvious inference that the natural period of the noctidiurnal in the annual cycle perpetually was one of four years, as in the simple Julian calendar; not one of 120, as in the Cyclico-Julian. It was probably this consideration as much as any thing else which determined Cæsar to change the idea of his proposed correction of the calendar, from the Cyclico-Julian to the simple Julian; and consequently to resolve on a cycle of leap-year four years not 120 in length. And that being the case, the deference which he was predisposed to pay to the authority of the Egyptians, and to the alleged antiquity and sacredness of that form of the simple Julian year, which they professed to have had among them from time immemorial, and to which we have given the name of the Sothiacal type of the Julian year, easily determined him to make choice of the cycle of leap-year proper to that; and to adopt it for the use of his own Correction, *mutatis mutandis* merely: that is, with the epoch of the cycle adapted to the proper rule of the Roman calendar; in which the intercalary month was Februarius: seven months later than that in the Sothiacal.

The mean Julian year however, in the form in which it actually enters the calendar as a certain number of integral days and nights perpetually, for three years at a time does not differ in appearance from the equable year itself. The standard of the common civil year, in the old Roman calendar, was 355 days; and that of the actual Julian year, for the first three years of every cycle of the leap day, is 365 days only. The excess of the one then and the defect of the other, relatively to each other, in every year of the cycle but the last would appear to be ten days only; so that in order to assimilate the old lunar year of Numa to the new solar year, which was intended to take its place in the calendar, nothing would seem to be requisite except that ten days should be given in some manner or other to the old year, and should ever after continue to make a part of it.

And as to the manner in which this addition was to be made; it is clear that, as no month in the old calendar (February alone excepted) contained less than 29 days, or more than 31; if the length of the months in the new calendar was not to offend against the analogy of that of the months in the old, it would not appear to be proper to give more than *two* days additional to any *one* month in the latter. The greatest month admissible into the new calendar must still be one of 31 days, like the greatest in the old. The next greatest consequently, (if they were not to be all of the same length,) would be one of 30 days. And as there were seven months in the preexisting calendar, each of which contained only 29 days, while each of the rest excepting February contained 31; if ten days were all which it was requisite to distribute among the existing months, in order to convert the calendar from lunar into solar at once; the most obvious mode of effecting the distribution, and therefore the most likely to be adopted, would be to give *two* days more to each of some *three* among these seven months, and *one* day more to each of the remaining *four*.

The constitution and details of the *actual* Julian Correction of Cæsar are known. Those of the calendar of Numa, or of the Decemviral correction of the calendar of Numa, *de facto* are known also. A comparison of the former with the latter, or *vice versa*, will shew at once both what months of the old

calendar received an addition to their former length in the new, and in what part of the preexisting month, and of its received divisions, it must have been made. For example, this comparison shews that no one of the months in the new calendar differed from the month of the same name in the old in the *first* of its recognized divisions; the interval from the Kalends to the Nones. Consequently no month in the old calendar could have received an addition to its length in the new between the Kalends and the Nones. Again no one month in the new calendar is seen to differ from the same nominal month in the old in the *second* of its divisions; the interval from the Nones to the Ides. Therefore no month in the old calendar could have been augmented in the new between the Nones and the Ides.

It follows that, if any such augmentation of the lengths of the months in the old calendar was actually made in the new, it must have been in the *third* of the divisions common to both; the interval from the Ides to the end of the month, or to the Kalends of the next month. And with respect to this, the distinctions which a comparison of the old calendar with the new shews to hold good in this part of each respectively are *these: All* the months in the old calendar, except February, had an a. d. xvii Kalendas of the next month. *Four* of those in the new (Martius, Majus, Quinctilis or Julius, and October) have an a. d. xvii Kalendas of the next month also; *Four* others (Aprilis, Junius, September, and November) have an a. d. xviii Kalendas of the next month; and *three* more (Januarius, Sextilis or Augustus, and December) have both an a. d. xix and an a. d. xviii Kalendas of the next. It is observable however that those first *four* months were months of 31 days in the old calendar, and they are months of 31 days in the new calendar also. Consequently no change could have been made in the length of those months in the new calendar. The next *four* months were months of 29 days in the old calendar, and they are months of 30 days in the new. They must consequently have each been increased by *one* day in the new; and *that* day must have come between the *Ides* and the *end* of the month. The three last were months of 29 days each in the old calendar, and they are months of 31 days each in the new. These *three* consequently must each have

been augmented by *two* days; and those two days in like manner must have come between the Ides and the end of the month. It thus appears from the comparison of the old calendar and of the Julian with each other (the names and order of the months in each being the same) that, as we concluded would probably be the case, four of the months in the former received an addition of one day in the latter, and three of those in the former received an addition of two days in the latter; the addition in each case being made between the Ides and the end of the month: i. e. in the third of the received and recognized divisions of the months common to both calendars alike.

SECTION III.—*On the seat of the additional days in such months of the old Calendar as received an accession to their length in the new.*

It is in our power to confirm these conclusions in particular instances by testimony, with respect both to such months as received an accession to their length in the Julian calendar, and to the part of the preexisting month in which it was inserted.

For i. With regard to the addition made to the Januarius of the old calendar, and to the part of that month in which it was introduced; in the Prænestine calendar, (which happens to be almost entire for the month of Januarius,) over against the iv Kalendas Februarias, January 29 Roman, a gloss occurs which Foggini has filled up as follows: Hunc . et . posterum . diem . DIVUS . CAESAR . ADDIDIT . ut . AUGERETUR . ANNUS. Macrobius confirms this statement[e]; shewing that *two* days were actually given to this month, and those two the iv and iii Kalendas Februarias, the 29th and 30th of the first Roman Januarius in the Julian æra.

ii. With regard to the Aprilis of the old calendar, the same Fasti Verrii Flacci are entire for this month also; and there is a note in them opposite to the vi Kalendas Maias, April 26 Roman of the time, HUNC . DIEM . DIVUS . CAESAR . ADDIDIT: though Macrobius[e] specifies this day so added as the iii Kalendas Maias, April 29 Roman not April 26; concerning

[e] Saturnalia, i. 14. 269.

which difference between his testimony and that of the Prænestine calendar something may be said by and by.

iii. For the remainder of the Julian Correction, except the month of December, these Fasti of Verrius Flaccus have perished; and December itself in its present state is little more than a fragment. For the rest of the months however Macrobius[e] will supply the information of which we are in search; and, according to his account, the Junius of the old calendar was augmented by *one* day, the iii Kalendas Quinctiles or Julias, June 29 in the new: the Sextilis was increased by *two* days, iv Kal. Septembres and iii Kal. Septembres, Sextilis or August 29 and 30; the September was lengthened by *one* day, iii Kalendas Octobres, Sept. 29; the November was increased by one day, iii Kalendas Decembres, November 29; and the December received an accession of *two* days, iv Kal. Jan. and iii Kal. Jan. December 29 and 30.

In all these remaining cases it appears that the additional day, or one of the two additional days, was the 29th of the month; i. e. in the Roman style the iv or iii Kalendas: and Macrobius, in representing the day given to Aprilis as the iii Kalendas Maias in the Roman style, April 29, not the vi Kalendas, April 26, would so far seem to be only consistent. But he has told us also[e] that the sites thus fixed upon for the addition of particular days in each of these instances were purposely selected by Cæsar, in order that none of those additions might interfere with the stated times or duration of any of the *feriæ* in the old calendar: Nam ideo novos dies circa finem cujusque mensis inseruit ubi finem omnium quæ in mense erant reperit feriarum[f]. Now the Floralia were part of the feriæ of the old calendar; and they began on the iv Kalendas Maias (April 28 in the Julian calendar, April 27 in the old), and ended v Nonas Maias, May 3 in both[g]. It was peculiar consequently to the Floralia to take in the last three days of Aprilis and the first three of Maius, both in the new calendar and in the old. It follows that, if Cæsar had inserted the extra day in this month where Macrobius supposes him to have done so, (viz. after the 28th of the month,)

[e] Ibid. loc. cit.

[f] Cf. Censorinus, De Die Nat. xx.

[g] Ovid, Fasti, iv. 943—v. 183. Cf. Vol. iii. 116. ii.

he must have introduced it in the midst of the Floralia; contrary to his rule. The Prænestine calendar, by giving it a place in the shape of the vi Kalendas Maias, April 26 Roman, brings it in critically between the Robigalia the vii Kal. Maias on the one hand, and the Floralia the iv Kalendas Maias on the other; yet equally clear of both. Nor could we hesitate in a case of this kind to prefer the authority of the compiler of this calendar, a contemporary of the Julian Correction itself, to that of Macrobius, so much later a writer.

Moreover all the days in the Roman calendar being reducible under one or other of the general distinctions of F. N. C. or Intercisi [h], Macrobius informs us also [i] that the extra days thus given to some of the months were added in each instance to the class of Fasti: Adjectosque a se dies Fastos notavit ut majorem daret actionibus libertatem: et non solum nullum Nefastum sed nec Comitialem quemquam de adjectis diebus instituit, ne ambitionem magistratuum augeret adjectio. Accordingly in the Maffæan and the Prænestine calendar the letter F stands opposite to iv Kal. Febr.; and in the latter opposite to iii Kal. Febr., the letters N. P.: in the former the letter N. In the same two calendars F stands opposite to vi Kal. Maias, C to iii Kal. Maias; the former agreeable to the distinction laid down by Macrobius himself, the latter not so. In the Maffæan and Exquiline F is opposite to iii Kal. Julias; in the Venusine C. In the Maffæan and Pincian F is attached to iv Kal. Septembres and to iii Kal. Septembres; each in conformity to Macrobius' distinction. In the Maffæan and Pincian F again accompanies the iii Kalendas Octobres; and in the Maffæan also the iii Kalendas Decembres. And both in the Maffæan and in the Prænestine we find the same character annexed to the iv Kal. Januarias and to the iii Kal. Januarias; all which is agreeable to the rule laid down by Cæsar in this respect, if Macrobius has stated it correctly.

SECTION IV.—*On the Intercalary system of the Julian Correction.*

As the final end of the Julian Correction was not a temporary but a perpetual reformation of the calendar; it was

[h] Vol. iii. 51. [i] Saturnalia, i. 14. 170.

absolutely necessary that the new calendar should have its proper intercalary system and intercalary rule; the observance of which alone could keep it true to itself, and to those relations to the natural year in which it was supposed to be founded. These relations, there is every reason to conclude, were assumed as those of absolute and simple equality. The Julian Correction was both intended and expected by its author to serve as the type and exemplar of the natural year for ever. The standard of the natural year itself was assumed in strict conformity to that of the mean Julian year, 365 days, and six hours, exactly; nor can there be any doubt that between these two things in the opinion and belief of Julius Cæsar, and in that of those who assisted him in the Correction, there was either no difference at all, or none which was appreciable, or, in almost any length of time, capable of making itself perceived. Hipparchus, it is true, more than an hundred years before the time of Cæsar, had ventured to call this assumption in question; and had done much to open the eyes of astronomers to the fact that the natural year was in reality a less quantity than the mean Julian year. But the contrary opinion had the advantage of a long prescription in its own favour. It was recommended by its antiquity, and by the authority of the Egyptians, among whom it appears to have first arisen. It was firmly believed by Plato, Eudoxus, and Callippus, long before the time of Hipparchus; and long after his time too, and notwithstanding his long series of observations, and just before the Julian Correction itself, it appears to have been still firmly impressed on the conviction of Geminus, Cleomedes, and others. It is not extraordinary therefore that the Dictator Cæsar, and even the scientific men of the day, (astronomers by profession,) who assisted him, should have laboured under the same old and inveterate prejudice in its behalf. No belief could have been more convenient for the purposes of such a correction of the calendar as the Julian.

Now in the natural year the epact, excess or ἐπουσία, (thus assumed at six hours or a quarter of a day exactly,) over the last complete day and night which enter the reckoning of annual in terms of noctidiurnal time, can never be overlooked or left out of account even *pro tempore;* but in the Julian,

as in the conventional type or representative of the natural, it may be omitted, or rather it must be[k], *pro tempore:* i. e. until it accumulates to an integral cycle of day and night. Some of the ancients (Ammianus Marcellinus for instance, or Solinus) have given such an account of the administration of annual Julian time itself in noctidiurnal as would seem to imply that the epact of six hours was every year taken into account; and consequently that the epoch of the former in terms of the latter was every year set forward or advanced by that amount. It is certain however that, though such an administration of annual Julian time in noctidiurnal is conceivable in theory, it was probably never realized in practice any where in the whole world; and certainly never at Rome, nor as the actual rule of the administration of the Julian Correction there. Nothing in the history of this Correction may be assumed more confidently than *this* fact; viz. That the Julian year at Rome from the time of the Correction of Cæsar, (and in fact from his time even to the present day,) so long as it was administered according to its proper law, never consisted of more than 365 days and nights in the first three years of the cycle of leap-year, or of less than 366 days in the fourth: and that the epoch of the actual reckoning of annual Julian time in terms of noctidiurnal was never any thing but the point of midnight *.

* The most correct definition of the Julian year is That form of the reckoning of annual time in terms of noctidiurnal perpetually in which there are 1461 perfect and equal cycles of the latter in four perfect and equal cycles of the former. The division of this number of noctidiurnal cycles by the corresponding number of the annual gives the mean or average length of the latter in terms of the former, 365 days and one quarter exactly. The Julian year cannot be thus defined without an equal knowledge both of its mean length, or length in theory, and of its actual length; that is, as actually administered in cycles of 365 integral days and nights at one time and of 366 at another. Accordingly it is so described by Columella; speaking of the interval which he considered to be competent to try the natural fecundity or bearing qualities of the young vine: Nec tamen ultra quadriennium talis extenditur inquisitio: id enim tempus fere virentium generositatem declarat quo sol in eandem partem signiferi per eosdem numeros redit per quos cursus sui principium cœperat .... quem circuitum meatus dierum integrorum mille quadringen-

[k] Cf. our Fasti Catholici, i. 468. Diss. vi. ch. iv. sect. 4.

Though therefore the Julian form of the civil year might have been assumed by Cæsar as the nearest approximation conceivable to the standard of the natural, and even at stated times as absolutely identical with the natural; yet from the necessity of the case, and from the reason of things, and from the analogy of every other instance of the same kind of year elsewhere, he could not fail to perceive that it must be so reckoned and so administered even in his own calendar, for every three years in succession, as if it were six hours less than the natural year. For three years, there would be no alternative but to leave the head of the natural year free to advance on the epoch of the civil at the rate of six hours every year; and to wait until the end of the fourth year, when these six hours would have accumulated to one cycle of day and night complete. And under such circumstances, it would be self-evident, that the introduction of one more day into the civil calendar, over and above the ordinary length of the civil year, just at the end of this year, would bring back the head of the natural to the head of the civil year; or *vice versa* would advance the head of the latter to a state of coincidence with that of the former; would restore the equality of the civil and the natural year exactly as at first, and place them in a condition to begin and proceed in conjunction, through another cycle of four years, exactly by the same steps.

The actual seat of this intercalary day, thus intended to represent the accumulated amount of four years' epact in the constant revolution of the annual cycle in the noctidiurnal, in the actual administration of both these things in conjunction would be matter of indifference; provided it came in neither more nor less than once in every four years. It was not however indifferent in the case of the Julian calendar properly so called; the Correction of Cæsar derived from the old Roman calendar. The intercalary month in that calendar had always been Februarius; and therefore the intercalary month in his Correction must be Februarius also. The actual

torum sexaginta unius *ἀποκατάστασιν* vocant studiosi rerum cœlestium. De Re Rust. iii. vi. 4. And that he thought proper to define the cycle of leap-year in this way in our opinion is a striking proof of his accuracy and of his attention to precision.

seat or place of the intercalary kalends, that is of the first day of the Merkedonius, in this month had always been Postridie Terminalia, the 24th of February Roman; and therefore the Postridie Terminalia, or February 24 Roman, was still to be retained as the seat of the intercalary day in the Julian Correction: only as the 24th of February *repeated;* that is, in the Roman style and designation of the 24th of February, the vi Kalendas Martias, and as the second vi Kalendas Martias, the Bissex Kalendas Martias*: a name which is said to have been given it by Cæsar himself. And Februarius being thus reserved in the new calendar for this stated augmentation of its length by one day every fourth year; it was the only month of the old calendar, retained in the new, which appeared to stand in need of an addition to its ordinary length, and most of all, and yet received none. It was reserved for this extraordinary augmentation at stated times; so indispensable to the equalisation of the Julian year to the natural. We have already explained from what Julian calendar older than his own Cæsar derived the actual cycle of the leap-day in his own correction; and why he took the cycle itself from the Sothiacal calendar of the Egyptians, but not the epoch of the cycle. Under these circumstances however it must be evident that, though the *positive* epoch of the reckoning of noctidiurnal and annual time in the Julian calendar both at first and still must be considered to be the Kalends of January or the first of January at midnight; its proper epoch always was the Kalends of March or first of

* Lydus, De Mensibus, iii. 4. p. 29. l. 1: Ὅτι βίσεξτον λέγεται διὰ τὸ δὶς πρὸ ἓξ Καλανδῶν Μαρτίων ἀριθμεῖν παρὰ τετραετίαν Ῥωμαίους—Ibid. 7. p. 34. l. 23; Ἡνίκα δὲ ἂν βίσεξτον ᾖ τὴν κε καὶ τὴν κς τῇ πρὸ ἓξ Καλανδῶν Μαρτίων ἔλεγον. He should have said τὴν κδ καὶ τὴν κε.

It happened A. D. 364 after the death of Jovian that Valentinian was declared emperor the day before the bissextile day in February; and this leads Ammianus Marcellinus to digress into an account of that day, xxvi. 1. 70.

The Terminalia were still attached to the same day in the Roman calendar, at the beginning of the persecution under Diocletian, A. D. 303; which is thus described by Lactantius or Cæcilius, De Mortibus Persecutorum, xii: Inquiritur peragendæ rei dies aptus et felix; ac potissimum Terminalia deliguntur; quæ sunt ad septimum Kalendas Martias, (February 23.)

March at midnight. It must be evident at least that the cycle of leap-year in the Julian reckoning of annual and noctidiurnal time, as both go on in conjunction according to the modern rule, begins perpetually on the first of March at midnight; immediately after the 29th of February. It must therefore be a mistake to speak of the year in which this 29th of February comes in as the *first* year of the cycle of leap-year, when it is so clearly the fourth; and when this day itself which comes in only once in four years is so clearly the very last day of the fourth year itself. The ancients were more exact, when they spoke of the introduction of the extra day between the end of the fourth and the beginning of the first year of the cycle.

Such is a brief and summary account of the process and results of the Julian Correction; which has done more to perpetuate the name and memory of the dictator Cæsar, than any other event of his life: though in strictness the whole merit and praise of the first conception and of the first introduction into use of the Julian year is due to the ancient Egyptians; and among them in particular was as old as the first conception and the first introduction of their Phœnix period. It is proper to add that according to Macrobius[l] he was assisted in it by M. Flavius the scribe; (to whom he assigned the business of delineating or drawing out the entire scheme of the Correction in detail, before any part of it had yet been carried into effect, and of allotting to every day its place and its style and its characteristic distinctions in the future calendar;) and according to Pliny[m], for the astronomical calculations necessary also, preliminary to the Correction, he was assisted by Sosigenes; and, according to Plutarch[n], by other scientific men of the day: all made instrumental in some manner or other to the furtherance and completion of the undertaking.

Macrobius sums up his own account of the Correction with this observation: Sic annum civilem Cæsar habitis ad *lunam* dimensionibus constitutum edicto palam posito publicavit[o]. This fact of its being published at last *ex edicto* is incidentally confirmed by the saying which Plutarch attributes to

[l] Saturnalia, i. 14. 268. [m] H. N. xviii. 57. 187. [n] Cæsar, lix.
[o] Saturnalia, i. 14. 270.

Cicero[p], when some one observed in his hearing with reference to the rising of Lyra in the original scheme of the Correction which had just been announced to the world, Cras Lyra orietur: *Nempe ex edicto.* The ortus Lyræ in question and in that first scheme of the calendar was the Nones of January[q]. But with respect to the rest of this observation of Macrobius, and especially that which appears to be incidentally introduced, Habitis ad *lunam* dimensionibus constitutum, the necessity of the case compels us either to pronounce it altogether a misstatement, or to suppose that he must have originally written Habitis *ad solem* not *ad lunam* dimensionibus constitutum. It has been imagined indeed by some of the learned that the Metonic cycle of 19 years was incorporated in the Julian Correction; and the Lunar Computus of Dionysius Exiguus, in contradistinction to his own Paschal Cycle of 19 years, besides this passage of Macrobius, has been thought to give some countenance to that opinion. With respect to this Computus of Dionysius, we may possibly have a future opportunity of explaining it on a totally different principle. But as to the opinion itself, we have not been able to discover any where the least foundation for it, except in this passage of Macrobius; nor any connection *ex professo* between the Julian Correction and the moon. The moon indeed was new December 31 B. C. 46; but that was the second of January in the first Julian year. There is no proof that any lunar reckoning entered the Julian Correction in any shape. The extant fragments of the Julian calendar, some of them almost contemporary with the Correction itself*, contain no indications of that kind; and yet they have

* The internal evidence of these different calendars, collected by Foggini, is abundantly competent to prove that they must all have belonged to the interval from the Correction downwards to the reign of Nero. The date of one of them (the Antiatine fragment) may perhaps be determined within a very few years of the truth.

There is an entry in this calendar, opposite to the viii Idus Novembres, (November 6): AGRIPP. JUL. NAT. i. e. Agrippinæ Juliæ Natalis: shewing that when it was compiled *this* day must have been still an *holiday*. There cannot be any doubt that, by this Agrippina Julia, the mother of Nero and the wife of Claudius is the person meant. She received the title

[p] Cæsar, lix. [q] Ovid, Fasti, i. 315.

incorporated among their details the Nundinal cycle of the time, and all the other actual characters of the days of the calendar: and if a lunar cycle had entered it also from the first that too must have appeared in them; just as one does appear in the Constantian calendar of later times, of which we hope ere long to give a particular account. In short this assertion in Macrobius could not be defended. It is most probable therefore that his text is in error, in reading *ad lunam* at present instead of *ad solem;* especially as he himself elsewhere distinctly affirms that Cæsar's year was *solar,* adapted *Ad numerum solis*[r], *Ad solis cursum*[s], and in imitation of the Egyptian, which was always solar too.

SECTION V.—*On the names of the months in the Julian Calendar.*

The names of the months in the old Roman calendar were not affected by the Julian Correction, (in the first instance at least,) any more than their order and succession. Every thing was left by Cæsar himself the same in those respects as before. Two of the months in the Julian calendar received fresh names; but not in the course of the Correction, nor as any consequence of the Correction. The month before called Quinctilis obtained the name of Julius; and that which was before called Sextilis came to receive the name of Augustus: the former too in honour of Julius Cæsar himself, the reformer of the calendar, but not on that account; the latter simply in honour of Augustus, and with no reference to the calendar whatsoever but what was purely accidental.

of Augusta U. C. 803 A. D. 50 Tac. Ann. xii. 26. 25, the year after her marriage to Claudius, U. C. 802 A. D. 49 (Tacitus, Ann. xii. 5. 8). After her death and the pretended discovery of her treasonable designs against Nero, U. C. 812 A. D. 59, Tacitus (Ann. xiv. 12.) records a decree passed by the Roman senate, that the Dies Natalis Agrippinæ inter nefastos esset. After *that* decree, we may presume no such entry as the above would have appeared in the public calendars; and if so this calendar, which *does* exhibit it, must have been compiled between A. D. 49 and 59. Her proper name was Agrippina Julia. She was the daughter of Germanicus, born U. C. 771 A. D. 18; Tac. Ann. ii. 54–53: and married to Cn. Domitius the father of Nero, U. C. 781 A. D. 28: Ann. iv. 75. 68. Cf. Suetonius, Nero, v. 8: Dio, lxi. 14.

[r] Saturnalia, i. 14. 268. [s] Ibid. 16. 383.

The reasons and in part the dates of these two changes in the nomenclature of the calendar, later than the Correction, are thus assigned by Macrobius[t]: i. Sequitur Julius, qui cum secundum Romuli ordinationem, Martio anni tenente principium, Quinctilis a numero vocaretur, nihilominus tamen etiam post præpositos a Numa Januarium ac Februarium retinuit nomen; cum non videretur jam quintus esse sed septimus. sed postea in honorem Julii Cæsaris Dictatoris, legem ferente M. Antonio M. filio consule, Julius appellatus est, quod hoc mense a. d. quartum Idus Quinctiles Julius procreatus sit[u]. As Marcus Antonius was never consul in the lifetime of Cæsar except in U. C. 710 B. C. 44, the date of this change is thus determined to that year. Both the date of the change and the reason assigned for it in this instance are confirmed by the contemporary historians; and it may be collected from Cicero[w] that it had certainly taken effect before the Ludi Apollinares (July 6—12 Roman) the same year.

ii. Augustus deinde est, qui Sextilis ante vocatus est; donec honori Augusti daretur ex Senatus consulto, cujus verba subjeci: CVM . IMPERATOR . CAESAR . AVGVSTVS . MENSE . SEXTILI . ET . PRIMVM . CONSVLATVM . INIERIT; ET . TRIVMPHOS . TRES . IN . VRBEM . INTVLERIT; ET . EX: JANICVLO . LEGIONES . DEDVCTAE . SECVTAEQUE . SVNT . EJVS . AVSPICIA . ET . FIDEM . SED . ET . AEGYPTVS . HOC . MENSE . IN . POTESTATEM . POPVLI . ROMANI . REDACTA . SIT . FINISQVE . HOC . MENSE . BELLIS . CIVILIBVS . IMPOSITVS . SIT . ATQVE . OB . HAS . CAVSSAS . HIC . MENSIS . HVIC . IMPERIO . FELICISSIMVS . SIT . AC . FVERIT . PLACERE . SENATVI . VT . HIC . MENSIS . AVGVSTVS . APPELLETVR. item plebiscitum factum ob eamdem rem, Sexto Pacubio tribuno plebem rogante.

Censorinus supplies the date of *this* change along with that of the preceding one also[x]: Ex his duodecim mensibus duorum tantum nomina immutata. nam qui Quinctilis fuit Julius cognominatus est C. Cæsare v et M. Antonio consulibus anno Juliano secundo (U. C. 710 B. C. 44): qui autem Sextilis fuerat ex S. C. Marcio Censorino C. Asinio

[t] Saturnalia, i. 12. 261.
[u] Cf. Vol. iii. 263.
[w] Ad Atticum, xiv. 11, 12. 18. 26. 28: xvi. 1, 2. 4. Cf. Appian, B. C. ii. 106. Dio, xliv. 5: xliii. 49.
[x] De Die Nat. xxii. p. 136.

Gallo Coss. in Augusti honorem dictus est Augustus, anno Augustano xx°. This year answers to U. C. 746 of the Fasti of Varro B. C. 8; and to the 20th of the Augustan æra, as dated U. C. 727 B. C. 27[y]. Dio assigns the same date[z]; and virtually Suetonius also[a]; though the Epitomator of Livy[b] seems to imply that it took place even so early as U. C. 727, the first year of the Augustan æra itself*.

* It might be inferred from Appian[1] that the change of the name of Quinctilis into that of Julius took place B. C. 45, after Cæsar's return from Munda. But its true date was B. C. 44. The only question can be whether it was a posthumous honour, decreed to the memory of Cæsar after his death, or one bestowed in his lifetime. And on this point too the truth appears to be that it was both proposed and decreed in his lifetime; some time between the Kalends of January and the Ides of March B. C. 44[2].

Postea honoris virtutum caussa Julii Cæsaris qui fastus correxit mensis Julius appellatus est[3]— Junium mensem dictum putant a Junone.... Julium quod eo mense dicitur Julius natus[4]—Εἶτα ὁ πέμπτος ἀπὸ Καίσαρος τοῦ καταγωνισαμένου Πομπήϊον Ἰούλιος.... ὠνομάσθη[5]— Τοῦ μηνὸς, ὃν ἐπὶ τιμῇ τοῦ Καίσαρος τοῦ προτέρου Ἰούλιον ἀντὶ Κυϊντιλίου καλοῦσι[6]— Ad mensem adludit Julium, qui dictus est in honorem Cæsaris[7]— Antonius ratum habuit Julium vocari Quinctilem mensem propter Julium eo mense natum[8]— Mensis in cœlo[9]—Ἰουλεῖς· οἱ Ῥωμαῖοι, ἀπὸ τοῦ βασιλέως ἀφ' οὗ καὶ ὁ μήν[10]—Nonæ Sextiles (Sextiles Augustæ Quinctiles Juliæ). nondum enim nomina de imperatoribus sumserant, propter quam mutationem nominum Virgilius ait

Et incipient magni procedere menses[11]—

Illud tangit quod Julius et Augustus menses in honorem Cæsaris et Augusti acceperunt nomina. nam antea Quinctilis et Sextilis dicti sunt[12]— Quinctilis et Sextilis mutati sunt postea in honorem Julii Cæsaris et Augusti: unde sunt Julius et Augustus[13]—

1 B. C. ii. 106.
2 Cf. Dio, xliv. 5: 7: 8: 4. Suetonius, Julius, lxxvi. 2: lxxxiv. 4.
3 Varro, Fragmenta, 252. Ephemeris.
4 Festus, ix. 196. 1 Junius.
5 Plutarch, Numa. xix.
6 Appian, B. C. v. 97.
7 Servius, ad Eclog. ix. 48.
8 Eusebius, Chron. Arm. Lat. ii. 253. ad Ann. 1969. Ol. 183. 2. Cf. Thesaurus Tempor. ad Ol. 184. 1. Syncellus, 574. 8.
9 Florus, iv. ii. 91.
10 Steph. Byz. 420.
11 Asconius, p. 36. in ii Contra Verrem.
12 Servius, ad Eclog. iv. 12.
13 Ad Georg. i. 43.

y Cf. our Fasti Catholici, iv. 475.
z iv. 6. 5: cf. lvi. 30. Zonaras, x. 35. 538 B.
a Augustus, xxxi. 2.
b Lib. cxxxiv. Cf. Dio, liii. 16.

SECTION VI.—*Testimonies of Antiquity to the nature, the process, and the effect of the Julian Correction.*

i. Sed tamen errabant etiamnum tempora donec
Cæsaris in multis hæc quoque cura fuit.
Non hæc ille deus tantæque propaginis auctor
Credidit officiis esse minora suis:
Promissumque sibi voluit prænoscere cœlum,
Nec deus ignotas hospes inire domos.
Ille moras solis quibus in sua signa rediret
Traditur exactis disposuisse notis.
Is decies senos tercentum et quinque diebus
Junxit; et e pleno tempora quarta die.
Hic anni modus est. in lustrum adcedere debet
Quæ consummatur partibus una dies [c].

Nomine Cæsareo Quinctilem Julius auget:
Augustus nomen Cæsareum sequitur [14].

Inde Dionæo præfulgens Julius astro
Æstatis mediæ tempora certa tenet.
Augustus sequitur cognatum a Cæsare nomen,
Ordine sic anni proximus ut generis [15].

Ὁ ἕκτος δὲ Αὐγοῦστος ἀπὸ τοῦ δευτέρου μὲν ἄρξαντος Σεβαστοῦ δὲ ἐπικληθέντος.... ὠνομάσθη [16]— Augustus Sebastus appellatus est, et sextum (Sextilem) mensem Augustum nuncupavit [17]— Αὐγοῦστος Καῖσαρ· ἀφ' οὗ ....ὁ μὴν Αὐγοῦστος ἐκλήθη, ὅ ἐστι Σεβαστός, Σεξτήλιος πρὶν ὀνομαζόμενος [18]— Ἐν τούτῳ τῷ καιρῷ ὁ Σεβαστὸς Ὀκταβιανὸς Αὐγοῦστος ἐπωνομάσθη, καὶ ὁ Σεξτίλιος μὴν Αὐγοῦστος προσηγορεύθη. ὅθεν ἤρξατο τὸ καλούμενον βίσεξτον· καθὸ γοῦν ἄγουσιν ἐξ ἐκείνου κατὰ τετραετίαν τὴν πρὸ ἓξ Καλανδῶν Μαρτίων [19].

The earliest instance of the use of the new name of the month Quinctilis occurs in Cicero's Letters Ad Atticum, B. C. 44: the Nonæ Juliæ for the Nonæ Quinctiles, in Brutus' notification of the Ludi Apollinares that year: with which Cicero found fault. We learn from this allusion

14 Ausonius, Eclogæ, 376. 7, De Mensibus Monosticha.

15 Ibid. 377. 13, De Mensibus Disticha.

16 Plutarch, Numa, xix.

17 Eusebius, Chron. Arm. Lat. ii. 257. ad Ann 1989. Ol. 188. 2. Cf. Thesaurus Temp. Ol. 187. 4. Syncellus, 589. 13.

18 Anecdota Græca Paris. ii. 275. l. 22. Ἐκλογαὶ ἱστοριῶν.

19 Julius Pollux, Chronicon, p. 156. (Hardtii, 1792. 8mo.)

[c] Ovid, Fasti, iii. 135.

ii. Conversus hinc ad ordinandum reipublicæ statum fastos correxit; jam pridem vitio pontificum per interkalandi licèn-

too[20] that the iv Idus Quinctiles was the last day of these Ludi. The last historical instance of the use of the old style in this respect we apprehend to be Philippica xiv. 5, 14: B. C. 43: the Idus Quinctiles for the Idus Juliæ, (the date of that Philippic,) and so used by Cicero himself. Martial in the reign of Domitian still designates August by the name of the *sixth* month:

Schemate non dubio sed aperte nominat illam
Quam recipit sexto mense superba Venus[21].

Which is meant of an image of Priapus carried every year in the month of August into the temple of Venus.

It would not be true to say that except in these two instances no change was ever made in the names of the months of the Julian calendar, even after the Correction; only that none was ever made except in these two instances which took effect permanently. Postea vero multi principes nomina quædam mensum immutaverunt suis nuncupando nominibus. quod aut ipsi postmodum mutaverunt aut post obitum eorum illa nomina pristina suis reddita mensibus fuerunt[23]. Let us briefly review these further changes, or intended changes; and the reasons on which they were founded.

i. The first proposition of this kind was made soon after the death of Augustus, U. C. 767 A. D. 14. Fuit qui suaderet appellationem mensis Augusti in Septembrem transferendum; quod hoc genitus Augustus illo defunctus esset[24]. It was probably intended hereby that August should have resumed its ancient name of Sextilis. But this proposal did not take even temporary effect.

ii. The emperor Tiberius was born on the 16th of November[25]; Livia or Julia Augusta his mother appears to have been born in October[26]. U. C. 770 A. D. 17[27] (or the next year) the Roman senate proposed to change the name of November into Tiberius and that of October into Livius[28]; a compliment which Tiberius declined: putting this very sensible question to the senate, What would they do, if they should have twelve Cæsars? some of them perhaps born in the same month?

iii. It appears from Suetonius[29] that Caligula in the first year of his reign U. C. 790 A. D. 37 gave the name of Germanicus to September; in honour of his father, who happened to have been born in that month: Et

20 xvi. 1: 4.
21 Epigramm. iii. 68. 7.
23 Censorinus, De Die Nat. xxii. ad fin.
24 Suetonius, Aug. ci. 5.
25 Dio, lvii. 18. Suetonius, Tiberius, v. 2: xxvi. 3. Kalendarium Antiatinum. Zonaras, xi. 2. 548. B.
26 Cf. our Fasti Catholici, iv. 477, note.
27 Dio, lvii. 17, 18.
28 Ibid. 18. Suetonius, Tiberius, xxvi. 5. SS. Deperditorum Vat. Coll. ii. 198. Dio Cassius, lxxviii.
29 Caius, xv. 4.

tiam adeo turbatos ut neque messium feriæ æstati neque vindemiarum auctumno competerent: annumque ad cursum

in honorem patris Septembrem mensem Germanicum appellavit. Yet it is not found so called in any of the subsequent years of his reign.

iv. Et quamquam censuissent patres ut principium anni inciperet mense Decembri quo ortus erat Nero (xviii Kal. Jan.[30] December 15 Roman) veterem religionem Kalendarum Januariarum inchoando anno retinuit[31]. This motion was made in the first year of Nero, and soon after his accession (iii Idus Octobres[32], October 13 Roman U. C. 807 A. D. 54)—Utque Circensium Cerealium ludicrum pluribus equorum cursibus celebraretur, mensisque Aprilis Neronis cognomentum acciperet[33]. The ostensible motive to this change was the detection of the conspiracy of Piso[34] U. C. 818 A. D. 65, which happened to come to light the day before the Ludi Cereales[35]; the date[36] of which was iv Idus Apriles to Pridie Idus Apriles, or the xiii Kalendas Maias. Suetonius alludes to this change in general terms[37]: Mensem quoque Aprilem Neroneum appellavit. Tacitus records another change the same year[38]: Et mensis qui Aprilem eundemque Neroneum sequebatur Maius Claudii Junius Germanici vocabulis mutantur: testificante Cornelio Orfito qui id censuerat *ideo* Junii nomen transmissum quia duo jam Torquati ob scelera interfecti infaustum nomen Junii fecissent.

v. Post autem duos triumphos[39] Germanici cognomine assumpto Septembrem mensem et Octobrem ex appellationibus suis Germanicum Domitianumque transnominavit; quia altero suscepisset imperium (in September[40]) altero (in October[41]) natus est[42]—Duorum mensium nomina mutata, Septembris in Germanicum et Octobris in Parthenicum[43]— Duo menses aliter appellati, September Germanicus et October Domitianus[44] —Δύο μῆνες μετωνομάσθησαν, Σεπτέμβριος Γερμανικὸς καὶ Ὀκτώβριος Δομετιανός[45]—Duorum mensium nomina mutata sunt, videlicet September in Germanicum October in Parthicum[46]—Domitian's Triumphs are dated by Mr. Clinton[47] A. D. 83 and A. D. 91 respectively; so that, if Suetonius is correct with regard to the date of these changes, they could not have been earlier than A. D. 91. They lasted no doubt to the end of the

30 Suetonius, Nero, vi. 1.
31 Tacitus, Ann. xiii. 10. U. C. 807 A. D. 54. Cf. xii. 64.
32 Cf. xii. 69.
33 Ann. xv. 74. 34 Ibid. 48–74.
35 Ibid. 53, 54.
36 Ovid, Fasti, iv. 389. Maffæan, Prænestine, and Vatican Calendar.
37 Vita, liv. 2.
38 xvi. 12: cf. xv. 35: 48: xvi. 8: 14.
39 Cf. Suetonius, Domitianus, vi. 3.
40 Cf. Suetonius, Titus, xi. 1.
41 Cf. Suetonius, Domitianus, i. 1. Dio, lxvii. 4. Josephus, De Bello, vii. iii. 1.
42 Cf. Suetonius, Domitianus, xiii. 8. Dio, lxvii. 4.
43 Eusebius, Chronic. Arm. Lat. ii. 277: Ad Ann. 2102. Ol. 216. 3. Domit. 6.
44 Thesaurus Temp. Jerome in Chron. Ad Ol. 216. 3. Cf. Prosper in Chron. 707 A. Dom. vii. et Nerva.
45 Chronicon Paschale, i. 466. 6.
46 Samuel Presbyter, Chron. ii. 34 A. D. 88. Cf. Victor, in Domitiano.
47 Fasti Romani, A. D. 83, and A. D. 91.

solis adcommodavit, ut trecentorum sexaginta quinque dierum esset, et interkalario mense sublato unus dies quarto quoque

reign of Domitian, five years even from A. D. 91; longer than any thing of the same kind before: which is probably the reason why these two only were noticed by Plutarch and Macrobius over and above those which affected Quinctilis and Sextilis: Τοὺς δὲ ἑφεξῆς δύο (next to August) Δομιτιανὸς εἰσεποίησε ταῖς αὐτοῦ ἐπωνυμίαις οὐ πολὺν χρόνον[48]—Mensis September principalem sui retinet appellationem: quem Germanici appellatione Octobrem vero suo nomine Domitianus invaserat. sed ubi infaustum vocabulum ex omni ære vel saxo placuit eradi menses quoque usurpatione tyrannicæ appellationis exuti sunt[49].

Dum Janus hiemes Domitianus auctumnos
Augustus annis commodabit æstates,
Dum grande famuli nomen adseret Rheni
Germanicarum magna lux Kalendarum,
* * *
Manebit altum Flaviæ decus gentis[50].

Restat Bactra novis restat Babylona tributis
Frænari: nondum in gremio Jovis Indica laurus:
Nondum Arabes Seresque rogant: nondum omnis honorem
Annus habet, cupiuntque decem tua nomina menses[51].

The date of this Sylva was Domitian's xviith consulship U. C. 848 A. D. 95, the year before his death.

vi. Menses Septembrem atque Octobrem Antonianum (Antoninianum) atque Faustinianum appellandos decrevit senatus: sed id Antoninus respuit[52]. The date of this proposition is not known: only that, if it was made in the lifetime of Faustina and after the accession of Antoninus Pius, it must have been some time between July 10 A. D. 138 his first year, and July 10 A. D. 141, the close of his third and the beginning of his fourth; in one of which Faustina died[53]. The motive of the proposed change in the case of September was probably the fact that Antoninus Pius had been born in that month (September 19[54]); and if so, probably Faustina too had been born in October. In which case, if she lived 36 y. 3 m. 11 days, according to the marble cited by Mr. Clinton[55] from Gruter, she must have died in January A. D. 142. And this date of her death seems to be confirmed by the coins of Alexandria; according to which she was still alive August 29 A. D. 141, but not so, August 29 A. D. 142.

vii. Hic idem mensem Septembrem Tacitum appellari jussit, idcirco quod eo in mense et natus et factus est imperator[56].

48 Numa, xix.
49 Macrobius, Saturnalia, i. 12. 262.
50 Martial, ix. ii. 1—8.
51 Statius, Sylvæ, iv. i. 40.
52 Historiæ Aug. SS. Antoninus Pius, 10.
53 Ibid. 6: 8.
54 Ibid. 1.
55 Fasti Romani, A. D. 141.
56 Historiæ Aug. SS. Tacitus, 13. Cf. cap. 3: vii Kal. Oct. Sept. 25 A.D. 275.

anno interkalaretur. quo autem magis in posterum ex Kalendis Januariis nobis temporum ratio congrueret, inter Novembrem ac Decembrem mensem interjecit duos alios; fuitque is annus quo hæc constituebantur XV mensium cum interkalario, qui ex consuetudine eum annum inciderat[d].

iii. Sed D. Julius, cum videret hac ratione nec ad lunam menses ut oportebat neque annum ad solem convenire, maluit annum corrigere; ut sic etiam menses vel cum veris illis solaribus etsi non singuli universi tamen ad anni finem necessario concurrerent[e]— Adeoque aberratum est ut C. Cæsar Pontifex Maximus suo iii et M. Æmilii Lepidi consulatu quo retro delictum corrigeret duos menses interkalarios dierum sexaginta septem in mensem Novembrem et Decembrem interponeret, cum jam mense Februario dies tres et viginti interkalasset; faceretque eum annum dierum CDXLV: simul providens in futurum ne iterum erraretur. nam interkalario mense sublato annum civilem ad solis cursum formavit. itaque diebus CCCLV addidit decem, quos per septem menses qui dies undetricenos habebant ita distribuit ut Januario et Sextili et Decembri bini adcederent, ceteris singuli: eosque dies extremis partibus mensium adposuit, ne scilicet religiones sui cujusque mensis a loco submoverentur. quapropter nunc cum in septem mensibus dies singuli et triceni sint quatuor tamen illi ita primitus instituti eo dinoscuntur quod Nonas habent septimanas, ceteri quintanas. præterea pro quadrante diei qui annum verum subpleturus videbatur instituit ut peracto quadriennii circuitu dies unus, ubi mensis quondam solebat, post Terminalia interkalaretur; quid nunc Bisextum vocatur[f].

iv. Sed postea C. Cæsar omnem hanc inconstantiam temporum vagam adhuc et incertam in ordinem statæ definitionis coëgit, adnitente sibi M. Flavio scriba, qui scriptos dies

The most indiscriminate alteration of the nomenclature of the Julian calendar was made by Commodus, and as we apprehend in the sixth year of his reign, A. D. 185–186; but as this is an important point, into which we shall have to inquire on a future occasion, we reserve it for the present.

[d] Suetonius, Julius, xl. Cf. Augustus, xxxi. 2.

[e] Censorinus, De Die Nat. xxii.

[f] Ibid. xx. Cf. xxi.

singulos ita ad dictatorem retulit ut et ordo eorum inveniri facillime posset, et invento certus status perseveraret.

Ergo C. Cæsar exordium novæ ordinationis initurus dies omnes qui adhuc confusionem poterant facere consumsit: eaque re factum est ut annus confusionis ultimus in quadringentos quadraginta tres dies protenderetur. post hæc imitatus Ægyptios*, solos divinarum rerum omnium conscios, ad numerum solis qui diebus tricenis sexaginta quinque et quadrante cursum conficit annum dirigere contendit.....

Julius ergo Cæsar decem dies observationi veteri superadjecit, ut annum trecenti sexaginta quinque dies quibus sol zodiacum lustrat efficerent; et ne quadrans deesset statuit ut quarto quoque anno sacerdotes qui curabant mensibus ac diebus unum interkalarent diem, eo scilicet mense ac loco quo etiam apud veteres interkalabatur; id est ante quinque ultimos Februarii mensis dies: idque Bisextum censuit nominandum. dies autem decem quos ab eo additos diximus hac ordinatione distribuit. in Januarium et Sextilem et Decembrem binos dies inseruit: in Aprilem autem Junium Septembrem Novembrem singulos. sed neque mensi Februario addidit diem, ne deo infero religio immutaretur; et Martio Maio Quinctili Octobri servavit pristinum statum, quod satis pleno erant numero: id est dierum singulorum tricenorumque. ideo et septimanas habent Nonas †, sicut Numa constituit, quia nihil in his Julius mutavit. sed Januarius Sextilis De-

* Cf. Saturnalia, i. 16. 283: Nec mirum si hæc digeries morsum reprehensionis evasit, cui arcessita est ab Ægypto postrema correctionis auctoritas. nam Julius Cæsar, ut siderum motus de quibus non indoctos libros reliquit ab Ægyptiis disciplinis hausit; ita hoc quoque ex eadem institutione mutuatus est, ut ad solis cursum finiendi anni tempus extenderet.

† Both Censorinus and Macrobius (the latter probably after the former) insist on *this* circumstance, viz. that in each of these four months, Martius Maius Quinctilis October, the Nones still fell on the *seventh* day; as internal evidence that Cæsar made no change in the length of each of those. They might as well have argued that, because in January, August, and December the Nones still fell on the *fifth* day, he made no change in the length of any of these too. The true test and criterion of the change made in the length of a particular month of the old calendar in the new one of Cæsar was not the place of the Nones, but, as we have already observed, the presence or the absence of an a. d. xviii or an a. d. xix Kalendas, or that of both at once.

cember, quibus Cæsar binos dies addidit, licet tricenos singulos habere post Cæsarem cœperint, quintanas tamen habent Nonas; et ab Idibus illis sequentes Kalendæ in undevicesimum revertuntur: quia Cæsar quos addidit dies neque ante Nonas neque ante Idus inserere voluit, ne Nonarum aut Iduum religionem quæ stato erant die novella comperendinatione conrumperet. sed nec post Idus mox voluit inferre, ne feriarum quarumque violaretur indictio: sed peractis cujusque mensis feriis locum diebus advenis fecit.

Et Januario quidem dies quos dicimus quartum et tertium Kalendas Februarias dedit. Aprili tertium Kalendas Maias: Junio tertium Kalendas Julias: Augusto quartum et tertium Kalendas Septembres: Septembri tertium Kalendas Octobres: Novembri tertium Kalendas Decembres: Decembri vero quartum et tertium Kalendas Januarias. ita factum est ut cum omnes hi menses, quibus dies addidit, ante hanc ordinationem habuissent mensis sequentis Kalendas a. d. septimumdecimum revertentes, postea ex augmento additorum dierum hi qui duos acceperunt a. d. nonumdecimum, qui vero unum a. d. octavumdecimum, haberent reditum Kalendarum. feriarum tamen cujusque mensis ordo servatus est. nam si cui fere tertius ab Idibus dies festus aut feriatus fuit, et tunc a. d. sextumdecimum dicebatur, etiam post augmentum dierum eadem religio servata est ut tertio ab Idibus die celebraretur, licet ab incremento non jam a. d. sextumdecimum Kalendas, sed a. d. septimumdecimum si unus a. d. octavumdecimum si duo additi sunt, diceretur [g].

v. Itaque Cæsar universam hanc inconstantiam incisa temporum turbatione composuit; et ut statum certum præteritus error acciperet dies xxi* et quadrantem simul interkalavit: quo pacto regradati menses de cetero statuta ordinis sui tempora detinerent. ille ergo annus solus trecentos xliv dies habuit; alii deinceps trecentenos sexagenos quinos et quadrantem [h].

* The sense requires xxii et quadrantem. We must suppose Solinus to mean that Cæsar intercalated four times 22¼ days, 89 days in all. His other number, 344, being corrected by 444, this will imply that the ordinary length of the year would have been 444—89, or 355 days; and with this extraordinary addition it was 444.

[g] Macrobius, Saturnalia, i. 14. 268. [h] Solinus i. 45.

vi. Spatium anni vertentis id esse periti mundani motus et siderum definiunt veteres, (inter quos Menon (Meton) et Euctemon et Hipparchus et Archimedes excellunt,) cum sol perenni rerum sublimium lege polo* percurso signifero quem zodiacum sermo Græcus adpellat trecentis et sexaginta quinque diebus emensis et noctibus ad eundem redierit cardinem: ut verbo tenus si a secunda particula elatus Arietis ad eam dimensione redierit terminata. sed anni intervallum verissimum memoratis diebus et horis sex adusque meridiem concluditur plenam; annique sequentis erit post horam sextam initium porrectum ad vesperam. tertius a prima vigilia sumens exordium ad horam noctis extenditur sextam. quartus a medio noctis ad usque claram trahitur lucem†.

Ne igitur hæc computatio variantibus annorum principiis, et quodam post horam sextam diei alio post sextam excurso nocturnam, scientiam omnem squalida diversitate confundat, et autumnalis mensis inveniatur quandoque vernalis; placuit senas illas horas, quæ quadriennio viginti colliguntur atque quatuor, in unius diei noctisque adjectæ transire mensuram. hocque alte considerato eruditis concinentibus multis, effectum est ut ad unum destinatumque exitum circumversio cursus annui revoluta nec vaga sit nec incerta: nulloque errore deinceps obumbrata ratio cœlestis appareat, et menses tempora retineant præstituta...hocque ex cœpto emerserunt alia plurima quæ fallebant, quorum meminisse nunc supervacuum puto. quibus abolitis Octavianus Augustus Græcos secutus hanc inconstantiam correcta turbatione composuit, spatiis duodecim mensium et sex horarum magna deliberatione collectis, per quæ duodecim siderum domicilia sol discurrens motibus sempiternis anni totius intervalla concludit.

* Observe this use of *polo* in the sense of a circle: and cf. our Fasti, i. 284. note.

† This account evidently supposes the standard of the natural year to be that of the mean Julian, 365 d. 6 h. But it also supposes its epoch to have been sunrise at the v. or the a. equinox; i. e. 6 A. M. And that would not be agreeable to any rule of the noctidiurnal cycle, with which Ammianus Marcellinus may be supposed to have been acquainted, but the Babylonian or the Persian. There is no proof that this rule existed in Syria as early as his time. Cf. our Fasti Catholici, i. 192.

quam rationem bissexti probatam etiam victura cum sæculis Roma adjumento numinis divini fundavit[i].

vii. Jamque dies ni fallor adest[k]—Non quasi nescius dixit; sed propter anni confusionem quæ erat apud majores. nam ante Cæsarem, qui nobis anni rationem composuit quam hodieque servamus : . interkalabantur dies, ut etiam in Verrinis legimus (ii. 52), scilicet lunæ non congruente ratione. annum autem primo Eudoxus post Hipparchus deinde Ptolemæus ad ultimum Cæsar deprehendit.

viii. Ἡ δὲ τοῦ ἡμερολογίου διάθεσις καὶ διόρθωσις τῆς περὶ τὸν χρόνον ἀνωμαλίας φιλοσοφηθεῖσα χαριέντως ὑπ' αὐτοῦ, καὶ τέλος λαβοῦσα, γλαφυρωτάτην παρέσχε χρείαν. οὐ γὰρ μόνον ἐν τοῖς παλαιοῖς πάνυ χρόνοις τεταραγμέναις ἐχρῶντο Ῥωμαῖοι ταῖς τῶν μηνῶν πρὸς τὸν ἐνιαυτὸν περιόδοις, ὥστε τὰς θυσίας καὶ τὰς ἑορτὰς ὑποφερομένας κατὰ μικρὸν εἰς ἐναντίας ἐκπεπτωκέναι τοῖς χρόνοις ὥρας, ἀλλὰ καὶ περὶ τὴν τότε οὖσαν ἡλιακὴν οἱ μὲν ἄλλοι παντάπασι τούτων ἀσυλλογίστως εἶχον, οἱ δ' ἱερεῖς μόνοι τὸν καιρὸν εἰδότες ἐξαίφνης καὶ προῃσθημένου μηδενὸς τὸν ἐμβόλιμον προσέγραφον μῆνα, Μερκηδόνιον ὀνομάζοντες· ὃν Νομᾶς ὁ βασιλεὺς πρῶτος ἐμβαλεῖν λέγεται, μικρὰν καὶ διατείνουσαν οὐ πόρρω βοήθειαν ἐξευρὼν τῆς περὶ τὰς ἀποκαταστάσεις πλημμελείας, ὡς ἐν τοῖς περὶ ἐκείνου γέγραπται. Καῖσαρ δὲ τοῖς ἀρίστοις τῶν φιλοσόφων καὶ μαθηματικῶν τὸ πρόβλημα προθεὶς ἐκ τῶν ὑποκειμένων ἤδη μεθόδων ἔδειξεν ἰδίαν τινὰ καὶ διηκριβωμένην μᾶλλον ὄρθωσιν, ᾗ χρώμενοι μέχρι νῦν Ῥωμαῖοι δοκοῦσιν ἧττον ἑτέρων σφάλλεσθαι περὶ τὴν ἀνωμαλίαν[l].

ix. Καὶ τὸν ἐνιαυτὸν ἀνώμαλον ἔτι ὄντα διὰ τοὺς ἔσθ' ὅτε μῆνας ἐμβολίμους, (κατὰ γὰρ σελήνην αὐτοῖς ἠριθμεῖτο,) ἐς τὸν τοῦ ἡλίου δρόμον μετέβαλεν ὡς ἦγον Αἰγύπτιοι[m].

x. Ταῦτά τε ἐνομοθέτησε, καὶ τὰς ἡμέρας τῶν ἐτῶν οὐ πάντη ὁμολογούσας σφισὶ (πρὸς γὰρ τὰς τῆς σελήνης περιόδους ἔτι καὶ τότε τοὺς μῆνας ἦγον) κατεστήσατο ἐς τὸν νῦν τρόπον, ἑπτὰ καὶ ἑξήκοντα ἡμέρας ἐμβαλὼν, ὅσαιπερ ἐς τὴν ἀπαρτιλογίαν παρέφερον. ἤδη μὲν γάρ τινες καὶ πλείους ἔφασαν ἐμβληθῆναι· τὸ δ' ἀληθὲς οὕτως ἔχει. τοῦτο δὲ ἐκ τῆς ἐν Ἀλεξανδρείᾳ διατριβῆς ἔλαβε, πλὴν καθόσον ἐκεῖνοι μὲν τριακονθημέρους τοὺς μῆνας λογίζονται, ἔπειτα ἐπὶ παντὶ τῷ ἔτει τὰς πέντε ἡμέρας ἐπάγουσιν· ὁ δὲ δὴ Καῖσαρ ἐς μῆνάς (τε) ταύτας τε καὶ τὰς ἑτέρας δύο ἃς ἑνὸς μηνὸς ἀφεῖλεν

[i] Ammianus Marc. xxvi. 1. p. 70. [k] Virgil, Æn. v. 49. et Servius, in loc.
[l] Plutarch, Cæsar, lix. [m] Appian, B. C. ii. 154. Cf. our Fasti, iv. 199, 200.

ἐνήρμοσε. τὴν μέντοι μίαν τὴν ἐκ τῶν τεταρτημορίων συμπληρουμένην διὰ πέντε καὶ αὐτὸς ἐτῶν ἐσήγαγεν, ὥστε μηδὲν ἔτι τὰς ὥρας αὐτῶν πλὴν ἐλαχίστου παραλλάττειν. ἐν γοῦν χιλίοις καὶ τετρακοσίοις καὶ ἑξήκοντα καὶ ἑνὶ ἔτει μιᾶς ἄλλης ἡμέρας ἐμβολίμου δέονται[n].

We do not think it necessary to call attention to any of these testimonies but this last, of Dio Cassius. The derivation of the first idea even of the Julian Correction from Cæsar's residence in Egypt is plainly asserted in it: and yet, as we argued before[o], the Alexandrine correction properly so called being *nineteen* years later than the Julian, it would be unreasonable to suppose that so well informed and exact a writer as Dio could have fallen into the absurdity of making Cæsar borrow the idea of his own Correction from one which was not then in existence. But the truth is, as we have demonstrated in our former work, the Egyptians had many forms of the Julian year in Cæsar's time; from any of which he might have derived the idea of his own: and in particular, the Sothiacal, of the epoch of B. C. 1350; from which in reality it appears to have been taken*.

But the most important reflection suggested by this account of Dio's is the following. It appears from his concluding observation that, by virtue of this Correction of Cæsar's, he considered the civil year to have been brought so nearly to a state of equality to the natural that they were competent to go on together, without requiring any fresh adjustment of one to the other, for 1461 years; but that, at the end of

* This testimony of Dio's clearly implies that even the details of the Julian Correction were borrowed from these Julian calendars of the Egyptians, with one circumstance of distinction only; viz. that in the latter all the months were of the same length, and contained 30 days apiece, in the Julian Correction they were of unequal length; the five days, over and above the 360, in all of them were reserved for the end of the year, and were there inserted by themselves; in the Julian calendar they were distributed among such of the months as had 31 days instead of 30. It implies also that Cæsar took account of the quarter of the day every four years, as the Egyptians also did; that is, that he too intercalated an entire day every four years, as well as they: though where he inserted it in his calendar, in this passage Dio does not expressly say. And yet from other parts of his history it appears that he very well knew it was in the month of February.

[n] Dio, xliii. 26. Cf. Lydus, De Mensibus, iii. 4. 28. l. 16. [o] Fasti, iv. 200.

this number of years, the civil year in the sense of the Julian would be found to have lost a day in comparison of the natural, and would require an intercalation of two days instead of one (a leap-day of 48 hours instead of 24), in order to restore it to the same state of equality to the natural year as before.

The *prima facie* inference from such a statement as this would seem to be that in the opinion of its author the natural year was a greater quantity than the mean Julian year; and by so much a greater quantity as would amount to a day and a night in 1461 years. Nor can it be denied that such an opinion might possibly have been entertained even in Dio's time. Meton the Athenian assumed the mean standard of the natural year at $\frac{1}{76}$ of a day and a night more than the mean Julian[p]; and the Christian chronologer Julius Africanus even in the third century of the vulgar æra is found to be still adopting this erroneous standard of Meton's. Galen also, well informed as he was, appears to have been of opinion that the natural year was something more than 365 days 6 hours in length, instead of something less[q]*.

We cannot help suspecting however that this statement of Dio's must be explained on a very different principle. It is

* The learned Theodore Gaza, on the other hand, appears to have been of opinion that, though the Julian year was greater than the natural, it was only so much so as to gain one day upon it in 200 years. This implies an annual difference between them of 7 m. 12 sec.; and therefore that the mean standard of the natural year was 365 d. 5 h. 52 m. 48 sec.: a standard which does not appear in the list which we proposed in our Fasti, (i. 75 sqq.) but comes very near to that of the ancient Etrurians, 365 d. 5 h. 53 m. 15 sec. of which we gave an account Vol. ii. 500. De Mensibus, x. 298 B. C. he observes: Εἰ δ' ἄρα που μηδὲ τὰ περὶ τὴν ἡλίου κίνησιν τἀκριβὲς παντάπασιν ἴσχοι ἡμῖν· ἀλλ' οὖν γε πολὺ τῶν περὶ τὴν σελήνην ἀκριβέστερ' ἐστι, καὶ τὸ πλημμελούμενον εὐδιορθωτότερον· εἴ γε μίαν μὲν διὰ τετραετηρίδος ἡμέραν ἐμβόλιμον, μίαν δὲ σχεδὸν διὰ διακοσιετηρίδος ἐκβόλιμον, ποιεῖσθαι ἀποχρώντως ἂν ἔχοι· ἢ ὁπόσον ἂν διὰ πλείστου οἱ περιόντες ἀεὶ τῷ χρόνῳ ἀστρονομίας ἐμπειρότατοι κρίνωσιν.

He was writing A. D. 1470 (cf. the Introduction to the Tables of our Fasti, p. 120): 112 years before the Gregorian correction. Cf. xiv. 300 B. C. where he complains of the neglect of this ἐκβόλιμος ἡμέρα for a long time past; and of the consequent anticipation of the cardinal points on their civil dates thereby produced.

p Fasti, i. 74. q Ibid. i. 74.

not a little remarkable that the number of years, in which he supposes this defect of the Julian year on the natural to accumulate to one day exactly, is 1461; i. e. the proper measure of the Sothiacal period of the Egyptians in terms of the equable year: 1461 of which were necessarily just the same as 1460 mean or actual Julian years. The Egyptians had a Julian year, as we have often explained; attached originally to the proper Julian epoch of this period, July 22 in the leap years of its proper cycle, July 21 in the common years. The period itself began B. C. 1350; and it came to an end for the first time, A. D. 135–139[r]: and its proper epoch at that time, under the same circumstances as at first, was July 21 in the leap years of the cycle, July 20 in the common years.

There was consequently one day's difference between the proper Julian epoch of the first Sothiacal period, and the proper Julian epoch of the second; though it is manifest that, as both were alike Julian periods, and alike measured or measurable by the same cycle of leap year, there ought to have been no difference between them in that respect. The true explanation of this anomaly is that matter of fact, which we had occasion to establish in our former work at great length and by a variety of arguments; viz. that, without any change in the *real* value of a *given* Julian term before and after B. C. 672 respectively, the nominal value of the entire series of such terms, from the very first, April 25=24 B. C. 4004, was so far changed in coming down to B. C. 672 and beyond it that ever after that point of time July 21 was absolutely the same thing in reference to the stated epoch of the Sothiacal period as July 22 before it; and July 20 as July 21. But the *prima facie* explanation of the phenomenon would appear to be that the mean Julian year had lost a day in the course of one Sothiacal period; had fallen back from July 22 to July 21, and from July 21 to July 20: and that in order to bring it back to its original epoch, and to its original relations to that period, it required the intercalation of a day.

With this statement of Dio's that the mean Julian year was liable to stand in need of one day's correction additional in the course of an entire Sothiacal period; we should by all

[r] Fasti, i. 671: iii. 63.

means compare another which occurs in Solinus, respecting the stated date of the rising of Canicula in Egypt: whereby, instead of being limited as usual to one day, it is extended in fact over three days, the xiii, the xii, and the xi Kalendas Augusti; and that too on the authority of the priests of Egypt themselves: Quod tempus sacerdotes natalem mundi judicarunt, id est inter tertium decimum Kalendas Augustas et undecimum[s]. In Solinus' time the Julian Correction of Cæsar, (i. e. the Roman Julian year,) and the Julian year of chronology, were the same thing; and consequently these three Roman dates, the xiii, the xii, and the xi Kalendas Augustas, here specified by him, denoted July 20, 21, and 22 Roman and July 20, 21, and 22 Julian alike. The two former of these were the stated dates of the rising of Sirius in the second Sothiacal period (with which Solinus himself was contemporary); one in the common years the other in the leap-years of its proper cycle. But what shall we say to the third, July 22, in connection with the rising of Sirius in Solinus' time, or during the decursus of this second period at all? when the phenomenon itself had long ceased to fall upon it. If it cannot be explained by the fact of any such actual connection in his time; on what principle can it be explained, except that of a former connection, handed down by tradition? that this was once the stated date of the phenomenon, and was still remembered to have been so? If the stated dates of the phenomenon began with being July 22 and 21, they must be considered to be virtually July 22 and 21 ever after; as much as *de facto* July 21 and 20, those dates in Solinus' time. And on this principle it might truly be said that the Natale mundi, if circumscribed by the extreme limits of the heliacal rising of Canicula, was comprehended between these stated dates, July 20 and 22; or as Solinus expressed it, Inter tertium decimum Kalendas Augustas et undecimum: neither earlier than July 20 nor later than July 22; but, (between such limits,) on any of these terms, July 20, 21, and 22 alike.

This statement of Solinus' then, properly understood, turns out to be virtually the same with Dio's respecting the reces-

[s] xxxii. 13.

sion of the mean Julian year on some other*, with which it was compared perpetually in such a period as the Sothiacal; a recession amounting to one day in the course of one such period. Each is singular of its kind, and at first sight very unintelligible; but when confronted and collated together they clear up and explain one another: and they both confirm the very important fact, to which we lately alluded as the true explanation of the phenomenon in question; viz. the depression of the proper epoch of the entire series of noctidiurnal, in the sense of Julian, time after B. C. 672, from April 25 to 24, without any change in its relation to any thing else, or in its intrinsic value and meaning; an effect, which, as we have shewn at large in our former work, was ultimately due to the two miracles of Scripture, the solstice of Joshua, B. C. 1520, and the retrogradation of the sun in the time of Hezekiah, B. C. 710.

* This year, it should be remembered, was that of Sirius: the mean or actual interval of time between the heliacal rising of Sirius on any two consecutive occasions of that phenomenon. The sidereal year in the case of Sirius, by virtue of some very peculiar coincidences which appear to have been confined to that star, for a very long period of time, as far as observation could judge, was not to be distinguished from the mean Julian. Cf. our Fasti, iii. 44 sqq. note. It must have appeared externally and to observation absolutely the same as the mean Julian. It was probably this discovery which made the Egyptians fix on the standard of the mean Julian year as the absolute standard of the natural. Nor would they perhaps ever have suspected any the least discrepancy between them, but for the anomaly which we have been pointing out; the apparent recession of the Julian epoch of the period by one day, on what it was at first, in the course of one period, and that the first: a phenomenon which at first sight was not to be otherwise accounted for.

It follows however that the Egyptians must have considered the true epoch of the year of Sirius, in the first year of its proper cycle of leap-year, to have been still July 22, not July 21; and, if they assumed 1460 years of the former to have contained one day and night more than 1460 mean Julian years, they must have assumed the standard of the former at $\frac{86400}{1460}$ sec. more than that of the mean Julian year. Consequently at 365 d. 6 h. 0 m. 59·178 sec. And probably they assumed this also as the standard of the natural year. And probably too this was what Galen in particular meant, when he spoke of the natural year as something greater than the mean Julian. These opinions indeed could not have been entertained by the *ancient* Egyptians; but that is not the question.

SECTION VII.—ANNUS CONFUSIONIS DICTUS.

Veteris Kalendarii Romani ultimus.

Mensium XV. *Dierum* CDXLV.

Mensis I. *Januarius. Dierum* XXIX.

Varr.	Cap.	Polyb.	A. Ch. N.		
U.C. 708	707	705	47	Kalendæ	Oct. 11
				iv Nonas	12
				Nonæ	15
				viii Idus	16
				Idus	23
				xvii Kalendas Februarias	24
				Pridie Kalendas Februarias	Nov. 8

Mensis II. *Februarius. Dierum* XXIII.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	47	Kalendæ	Nov. 9
				iv Nonas	10
				Nonæ	13
				viii Idus	14
				Idus	21
				xi Kalendas Interkalares	22
				Pridie Kalendas Interkalares	Dec. 1

Mensis III. *Merkedonius Primus.*

Sive Mensis Interkalarius ordinarius.

Dierum XXVIII.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	47	Kalendæ	Dec. 2
				iv Nonas	3
				Nonæ	6
				viii Idus	7
				Idus	14
				xvi Kalendas Martias	15
				Pridie Kalendas Martias	29

Mensis iv. *Martius. Dierum* xxxi.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	47	Kalendæ	Dec. 30
				vi Nonas	31
—	—	—	46	Nonæ	Jan. 5
				viii Idus	6
				Idus	13
				xvii Kalendas Apriles	14
				Pridie Kalendas Apriles	29

Mensis v. *Aprilis. Dierum* xxix.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	46	Kalendæ	Jan. 30
				iv Nonas	31
				Nonæ	Feb. 3
				viii Idus	4
				Idus	11
				xvii Kalendas Maias	12
				Pridie Kalendas Maias	27

Mensis vi. *Maius. Dierum* xxxi.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	46	Kalendæ	Feb. 28
				vi Nonas	Mar. 1
				Nonæ	6
				viii Idus	7
				Idus	14
				xvii Kalendas Junias	15
				Pridie Kalendas Junias	30

Mensis vii. *Junius. Dierum* xxix.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	46	Kalendæ	Mar. 31
				iv Nonas	April 1
				Nonæ	4
				viii Idus	5
				Idus	12
				xvii Kalendas Quinctiles	13
				Pridie Kalendas Quinctiles	28

Mensis viii. *Quinctilis, postea Julius. Dierum* xxxi.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	46	Kalendæ	April 29
				vi Nonas	30
				Nonæ	May 5
				viii Idus	6
				Idus	13
				xvii Kalendas Sextiles	14
				Pridie Kalendas Sextiles	29

Mensis ix. *Sextilis, postea Augustus. Dierum* xxix.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	46	Kalendæ	May 30
				iv Nonas	31
				Nonæ	June 3
				viii Idus	4
				Idus	11
				xvii Kalendas Septembres	12
				Pridie Kalendas Septembres	27

Mensis x. *September. Dierum* xxix.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	46	Kalendæ	June 28
				iv Nonas	29
				Nonæ	July 2
				viii Idus	3
				Idus	10
				xvii Kalendas Octobres	11
				Pridie Kalendas Octobres	26

Mensis xi. *October. Dierum* xxxi.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	46	Kalendæ	July 27
				vi Nonas	28
				Nonæ	Aug. 2
				viii Idus	3
				Idus	10
				xvii Kalendas Novembres	11
				Pridie Kalendas Novembres	26

Mensis xii. *November. Dierum* xxix.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	46	Kalendæ	Aug. 27
				iv Nonas	28
				Nonæ	31
				viii Idus	Sept. 1
				Idus	8
				xvii Kalendas Interkalares Priores ..	9
				Pridie Kalendas Interkalares Priores ..	24

Mensis xiii. *Merkedonius Secundus, sive Mensis Interkalarius extra ordinem prior. Dierum* xxxiv.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	46	Kalendæ	Sept. 25
				vi Nonas	26
				Nonæ	Oct. 1
				viii Idus	2
				Idus	9
				xx Kalendas Interkalares Posteriores	10
				Pridie Kalendas Interkalares Posteriores	28

Mensis xiv. *Merkedonius Tertius, sive Mensis Interkalarius extra ordinem posterior. Dierum* xxxiii.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	46	Kalendæ	Oct. 29
				vi Nonas	30
				Nonæ	Nov. 4
				viii Idus	5
				Idus	12
				xix Kalendas Decembres.	13
				Pridie Kalendas Decembres	30

Mensis xv. *December. Dierum* xxix.

Varr.	Cap.	Polyb.	A. Ch. N.		
708	707	705	46	Kalendæ	Dec. 1
				iv Nonas	2
				Nonæ	5
				viii Idus	6
				Idus	13
				xvii Kalendas Januarias	14
				Pridie Kalendas Januarias	29

Annus, Julianus dictus, Primus.

Mensis i. *Januarius. Dierum* xxxi.

Varr.	Cap.	Polyb.	A. Ch. N.		
709	708	706	46	Kalendæ	Dec. 30
				iv Nonas	31
			45	iii Nonas	Jan. 1

CHAPTER II.

SECTION I.—*On the Julian date of the* Kalendæ Januariæ *in the first year of the Julian Æra.*

When the work of reforming the calendar was taken in hand, no change in the order, decursus, and reckoning of the months, as they were previously going on, appears to have been contemplated. None at least is seen to have been actually made. The Kalendæ Januariæ then in the first Julian year took up the Pridie Kalendas Januarias, the last day of December, in the year of confusion, the last year of the calendar previously in use; and allowance being made for the extraordinary number of days purposely introduced into this *one* year of the preëxisting calendar, the Kalends of January in *the first* Julian year and the Kalends of January in the *twentieth* year of the seventh cycle of the Irregular calendar both were and must have been absolutely and entirely the same.

The year of the Correction, B. C. 47–46 U. C. 708, was the 19th year of this cycle; and the Kalends of January in the 19th year of this cycle being shewn by our calendar October 11 B. C. 47—allow 445 days for the length of the year itself, (67 days more than its ordinary complement of 378,) and you come to December 30 B. C. 46. *This* then must have

been the true Julian date of the Kalends of January next after the year of confusion—next after the Correction of the calendar itself; in the first year of the Julian Æra properly so called: December 30 at midnight B. C. 46; and not, as it has hitherto been commonly supposed[t], January 1 at midnight B. C. 45.

SECTION II.—*Confirmation of this date by arguments derivable from the Calendar itself.*

The question consequently which *we* have now to discuss, preliminary to any inquiry into the administration of the Julian Correction itself, is *this*; Whether the truth of our General Roman Calendar, as we have brought it down from the first day in the calendar of Romulus to the last day in the Irregular calendar, can be depended on in its final result as much as in any of its indications, and at any intermediate point of time, before? And in answer to this question we may begin with observing generally i. That a calendar like this of our's, which hangs together as so many links of one and the same chain, (one part depending upon and one supported by another, one part giving birth to and one arising out of another,) must stand or fall in its *totality*. It cannot be wrong in one part and right in another; or vice versa. If it is in error at last, it must have been so from the first.

ii. That this General Calendar of our's has been verified for each of its particular and component parts; First from its primary epoch, the Kalends of March U. C. 4 of Varro (= U. C. 1) Feb. 4 B. C. 750, the first year of the calendar of Romulus, to its next, the Kalends of January U. C. 42, Feb. 17 B. C. 712, the first year of the calendar of Numa. Secondly, from its second epoch, the Kalends of January U. C. 42 Feb. 17 B. C. 712, to its third epoch, the Kalends of January U. C. 306 Dec. 29 B. C. 449, the first year of the Decemviral correction. Thirdly, from its third epoch, the Kalends of January U. C. 306 Dec. 29 B. C. 449, to its fourth, the Kalends of January U. C. 546 Dec. 29 B. C. 209, the first year of the Irregular calendar. Fourthly, from its fourth epoch, the Kalends of January U. C. 546 Dec. 29 B. C. 209, to the Kalends of January U. C. 708 October 11 B. C. 47, in

[t] Cf. Fasti Catholici, i. 439–451: Diss. vi. ch. iii.

the 19th year of the viith cycle of this Irregular calendar, the Kalends of January of the year of confusion, of the year which immediately preceded the first Julian year itself. The particular details of each of these periods, (not to say of the regular merely but of the irregular also,) according to our own arrangements and distribution of these latter throughout, have been confirmed and authenticated in so many instances and in such a variety of ways, that no reasonable doubt can be left of the general and substantial truth of those details even for the whole of the irregular period. It is to be considered then, whether a concatenation of dates like this, so connected and so substantiated from first to last, can possibly be wrong in the ultimate result of all. For it is as certain that this entire series of dates, thus consequentially deduced one from another, which makes up the complex of these Fasti Romani of our's, must have issued out in October 11 B.C. 47 or December 30 B. C. 46 at last, as that it must have begun on Feb. 4 B. C. 750 or Feb. 17 B. C. 712 at first.

iii. In some years of the antecedent period from B. C. 750 to B. C. 46 the Kalends of January have been obtained, as we have seen, from data entirely independent of our own calendar and of the most authentic description; and yet have been found to be altogether the same as those which were shewn by our calendar itself at the same points of time. Thus, from the date of the eclipse June 21 B. C. 400, we obtained first the Nones of June, and then the Kalends of January, in the synchronous Roman year; independently of our calendar, yet entirely in conformity to it. From the date of the eclipse March 11 B. C. 190 we got first the v Idus Quinctiles, and next the Kalends of January, for the time being; without the aid of our calendar, yet according to it also. From the date of the eclipse June 21 B. C. 168 we obtained first the iii Nonas Septembres and then the Kalends of January of U. C. 596; not with the help of our calendar, yet agreeably to it nevertheless. In like manner, from the Horoscope of Augustus, December 5 B. C. 63, we got first the viii Kalendas Octobres and next the Kalends of January U. C. 691; independently of our calendar yet in entire conformity to it. And lastly, from the true date of the vernal ingress B.C. 49 we got first the Ides of May

and then the Kalends of January U. C. 705; both agreeably to our calendar yet neither of them strictly speaking known only from and through our calendar.

Now on each of these data, (the truth of which thus rests, or may fairly be assumed to rest, on a foundation entirely distinct from the authority of our own calendar,) certain conclusions might be built, tending to illustrate and verify the details of our arrangements both before and after them. Any one of the number would serve for that purpose. But as the latest in point of time will be most convenient; let us be permitted to instance in the last mentioned, the date of the vernal equinox B. C. 49 on the Ides of May U. C. 705; i. e. the coincidence of March 23 Julian B. C. 49 with May 15 Roman U. C. 705.

The Idus Maiæ U. C. 705 being given in the form of March 23 B. C. 49, the Kalendæ Januariæ for the same year are given in the form of November 14 B. C. 50, at least on *one* supposition; viz. that the Roman year in question was not intercalary: and we have already produced proof of that fact [u], so that it may now fairly be taken for granted. Now the number of days in the actual Julian year, from November 14 B. C. 50 to December 30 B. C. 46, could be neither more nor less than $365 \times 3 + 366 + 46$, i. e. 1507 in all. Subtract from this sum the number of days in the year of confusion, 445; and the remainder is 1062. This must consequently have been the number of days in the three Roman years from the Kalendæ Januariæ U. C. 705 to the Kalendæ Januariæ U. C. 708; and the Kalendæ Januariæ U. C. 708, the first day in the year of confusion, must have been the 1063d day from November 14 B. C. 50. If so, each of these three Roman years must have consisted of 354 days, and no more; and consequently the Kalends of January of the next year after them, the Kalends of January U. C. 708, must have fallen on October 11 B. C. 47: for October 11 B. C. 47 was the 1063d day also from November 14 B. C. 50. The Kalends of January U. C. 708 and their proper Julian date October 11 B. C. 47 being given, and the length of the year of confusion being given; the rest follows as matter of course: viz. that the Kalends of January U. C. 709, the first

[u] Vol. iii. 446.

year of the Julian Æra, must have fallen on December 30 B. C. 46.

iv. The dates of the Kalends of January which our calendar exhibits *in annis expansis* from February 17 B. C. 712 to December 30 B. C. 46 are further confirmed by the cycle of the Nundinal day, incorporated in the actual Roman calendar from the very first. It is scarcely necessary to remind the reader that this is a kind of confirmation not derived from the calendar itself; and therefore so much the more important on the present question. The Nundinal cycle of former times was entirely independent of the calendar; just as the Hebdomadal is at present. It accompanied the cycle of Kalends in the Roman calendar, but it was not regulated by it. It followed one simple law, that of recurring, and falling on some one day or other in the calendar, every eight days; just as the Hebdomadal does every seven days: but it was independent itself of every thing in the calendar except the constant and uniform succession therein of the cycle of day and night.

For the confirmation of our calendar therefore in its final results, it is a very important fact that the Kalends of January in the first Julian year were Nundinal; and are known to have been so independently of our calendar itself. December 30 B. C. 46 was Nundinal also. If December 30 B. C. 46 and the Kalends of January in the first Julian year were the same thing under a different name; this coincidence is just what it should be. But if the Kalends of January in the first Julian year were not the same with December 30 B. C. 46, or *vice versa*; that will make no difference to the fact either that December 30 B. C. 46 or the Kalends of January in the first Julian year was Nundinal; it will affect only the agreement of one with the other: that is, the Julian date of the Kalends of January in question; which in this case, instead of being December 30 B. C. 46, must have been eight days later, January 7 B. C. 45, or eight days earlier, December 22 B. C. 46, or even 16 days later, or 16 days earlier: some multiple in short of the Nundinal cycle itself later or earlier than December 30 B. C. 46; the very statement of which alternative at this period in the history of the

Roman calendar is sufficient to shew its utter inadmissibility and its consequent absurdity.

Nor are there any means of escaping from this dilemma and its consequences, except by proving that December 30 B. C. 46 was not Nundinal; for that the Kalends of January in the first Julian year were so is a matter of fact which cannot be called in question. Nor would the disproof that December 30 B. C. 46 was Nundinal be any proof that January 1 B. C. 45 was so; nor should we be brought thereby any nearer to the conclusion that, because the Kalends of January in the first Julian year were not the same with December 30 B.C. 46, they were the same with January 1 B. C. 45. We learnt indeed from Dio[w] that the Kalends of January in the regular course of things would have been Nundinal B. C. 39; and we saw at that time that if January 1 B. C. 45 had been Nundinal January 1 B. C. 39 must have been so: and this may be regarded *prima facie* as some ground for supposing that possibly January 1 B. C. 45 and the Kalends of January in the first Julian year might have coincided.

But another fact is also intimated by Dio, as we hope to see hereafter; viz. that the Kalends of January either were or should have been Nundinal again A. D. 44. Let us consider whether this fact too is consistent with the hypothesis that January 1 and the Kalends of January B. C. 45 were both Nundinal and both the same.

B. C. 45 to A. D. 44 = 88 actual Julian years, 22 leap years, and 66 common years.

Sum of the epact in 22 leap years	=	$22 \times 6 = 132 = 16 \times 8 + 4$
Sum of the epact in 66 common years	=	$66 \times 5 = 330 = 41 \times 8 + 2$
Nundinal epact A. D. 44		6

If then the Nundinal character of January B. C. 45 was unity (i. e. January 1 was Nundinal) that of January A. D. 44 must have been 3: and if so there would have been no danger of the Nundinal incidence on the Kalends that year, as Dio says there was. But if the Nundinal character of January B. C. 45 was 7, as our calendar supposes it to have

[w] Vol. ii. 39.

been, then that of January A. D. 44 in the regular course of things would have been unity*.

Thus much may suffice for the general confirmation of the truth of our Roman Fasti down to the date of the Julian Correction, by means of the argument derived from the nature and constitution of the calendar itself, and from the cycle of its Kalends and the decursus of its Nundinal cycle, both in themselves and in conjunction perpetually. We shall now pass to arguments and considerations of a totally different kind; which nevertheless will be found to confirm their truth also.

SECTION III.—*Confirmation of the Julian date of the first Kalends of January in the Julian Correction by arguments not derived from the Calendar itself.* i. *Dates of the Cardinal points in the first Julian year.*

The importance of a right understanding on this question of the true Julian date of the first Kalendæ Januariæ in the Correction of Cæsar, with respect to the declared object of the Correction itself, (the substitution of a fixed civil and

* That the reader may not mistake the nature of our reasoning in the text in this instance, it is proper to inform him that as the Julian calendar was actually administered at Rome, from the Kalends of January U. C. 709 B. C. 46–45 to the Kalends of January 797 A. D. 44 the number of leap years was 25, and the number of common years was 63.

$$25 \times 6 = 150 = 18 \times 8 + 6$$
$$63 \times 5 = 315 = 39 \times 8 + 3$$

Nundinal epact A. D. 44 1

Consequently the Nundinal character B. C. 46–45 having been unity that of A. D. 44 would be 8: as our calendar shews it to have been. But if A. D. 43 had been a common year, and not a leap year, the epact would have been 8; and the character of A.D. 44 would have been unity: as Dio says it was in danger of being.

The reasoning in the text proceeds on the hypothesis that there was never any difference between the Kalends of January in the Julian Correction, and the first of January in the Julian year, neither at first nor ever after; for that in fact is the common opinion on this subject: and its object is to shew that such an assumption is contradicted by the fact which Dio attests of the Nundinal character of the Kalends of January A. D. 44. It makes no difference to our argument that for 36 years after B. C. 45 the Julian Correction in any case was irregularly administered at Rome. It is agreed that as many leap years were afterwards omitted as had been previously inserted, *extra ordinem*; and that was the same in effect as if every thing had gone on for those 36 years *secundum ordinem*.

solar year, as true and as close to the natural as if it were absolutely the same with it, instead of the vague and uncertain lunar year which was previously in use,) can scarcely be overrated. For that such was the professed object, and such the supposed effect, of the Correction cannot be denied. It follows that the cardinal points of the natural year must have been correctly laid down in the first Julian year; must have been supposed at least to have been so: otherwise it never could have pretended to represent the natural year in any sense or to any extent; much less to be absolutely the same with it.

We have already observed[x] that from the necessity of the case the determination of these points must have been an indispensable preliminary to the process, the end, and the effect of the Correction. And provided that they were only rightly ascertained beforehand it was of no importance in terms of what calendar, or in which of the styles of the civil reckoning of noctidiurnal and annual time for the time being, that might have been done. A given natural date under all circumstances must be the same with itself; and rightly assumed and laid down at the epoch of the Julian Correction it must have been one and the same thing whether in the equable Egyptian calendar, or in any of the lunar calendars of the Greeks, or even in the irregular Roman calendar itself, of the time being.

These points having thus been determined, it seems to have been agreed upon beforehand, and prescribed as a condition of the future Correction of the calendar, (and as one of the most important of its conditions too,) that the style of the vernal equinox in the calendar should be the viii Kalendas Apriles; that of the summer solstice the viii Kalendas Julias; that of the autumnal equinox the viii Kalendas Octobres; and that of the winter solstice the viii Kalendas Januarias. And these terms having been thus assumed and thus denominated they were submitted to Marcus Flavius the scribe as the cardinal points and divisions of the Correction, fixed in themselves, and unalterable in their denominations; in conformity to which and as dependent on which all the intermediate details of the future calendar were to be

[x] Supra, page 4.

determined and digested. Such points being fixed in four different instances the rest of the calendar was to be filled up accordingly; so that from the first of the terms so assumed to the second (from the vernal equinox in its proper style in the calendar to the summer solstice in the same, the length of the first quarter of the natural in terms of the civil year) the interval should be 91 days exactly; from the second so assumed to the third (from the summer solstice in the style of the calendar to the autumnal equinox in the same, the length of the second quarter of the natural in terms of the civil year) the interval should be 92 days exactly; from the third so assumed to the fourth (from the autumnal equinox in the style of the calendar to the winter solstice in the same, the length of the third quarter of the natural in terms of the civil year) the interval should be 92 days also; from the fourth term so assumed to the first again (from the winter solstice in the style of the calendar to the vernal equinox in the same, the length of the fourth quarter of the natural in terms of the civil year) the interval in the common years of the cycle of leap year should be 90 days, and in the leap years of the cycle should be 91 days. For these are the actual intervals between each of these natural terms under their corresponding dates in the calendar and the next to it respectively; and as these dates in the style of the calendar never varied, (were always nominally and in terms the same, as long as the proper Roman style continued to be used in connection with the Julian year at all,) it is manifest that such must have been the intervals prescribed for them and laid down between them from the first. Subject to these limitations it is agreed that Flavius with equal address and felicity executed the commission which was assigned him: and thereby furnished the dictator Cæsar with a complete and perfect exemplar of the future Correction before it was yet in being; and one which he had nothing to do but to realise and carry out into effect at last. Not merely the outline or skeleton of the calendar, but all the details, were submitted to Cæsar by Flavius, laid down and digested according to the idea which he had himself conceived of it. Scriptos dies singulos ita ad dictatorem retulit ut et ordo eorum inveniri facillime posset, et invento status certus perseveraret:

from the language of which description it is an obvious inference that the calendar was thus submitted to Cæsar on paper digested and distributed in this first instance, according to the conditions prescribed, not for one year merely but for the whole of one cycle of leap year.

The mode of designating and expressing the cardinal points of the natural year in terms of the Julian Correction, according to the proper Roman idiom and Roman style, as the learned are well aware has always been the same.

Cardinal points of the natural year in the Julian Calendar in their proper Roman style from the first.

i Vernal equinox	viii Kalendas Apriles
ii Summer solstice	viii Kalendas Julias
iii Autumnal equinox	viii Kalendas Octobres
iv Winter solstice	viii Kalendas Januarias.

The difference of meaning between these Roman dates of these natural terms, and the equivalent modern ones taken from the simple Julian year of chronology, according as we reckon the first Kalendæ Januariæ from December 30 B. C. 46 or from January 1 B. C. 45, amounts in each instance to *two* days.

i. Kalendæ Januariæ Dec. 30 at midnt.		ii. Kalendæ Januariæ Jan. 1 at midnt.	
viii Kal. Apriles	March 23	viii Kal. Apriles	March 25
viii Kal. Julias	June 22	viii Kal. Julias	June 24
viii Kal. Octobres	Sept. 22	viii Kal. Octobres	Sept. 24
viii Kal. Januarias	Dec. 23	viii Kal. Januarias	Dec. 25

The actual Julian dates of these four points in the first Julian year have been repeatedly determined by learned men and chronologers in modern times; and we might refer for them to various calculations, all more or less to the same effect. We have preferred however to calculate them from the Tables of our own Fasti Catholici. The following are the results.

Cardinal points or Solar Ingresses, in the first year of the Julian Æra, B. C. 45, calculated from the Tables of the Fasti Catholici for the meridian of Rome.

Mean Ingresses.			h.	m.	s. from midnight.		True Ingresses *.				
								h.	m.	s.	
i Vernal	March	25	0	6	55·2	March	23	3	24	0·8	m. t.
ii Summer	June	24	7	34	7·8	June	25	0	23	17·7	..
iii Autumnal	Sept.	23	15	1	20·4	Sept.	25	9	2	41·3	..
iv Winter	Dec.	23	22	28	33·0	Dec.	23	3	57	38·7	..

These dates being compared with those above, Table i and ii, a perfect agreement is discoverable between the two most important of them, the date of the vernal equinox and that of the winter solstice respectively, and the corresponding dates in Table i; from which it will follow that according to that Table, and to the mode of understanding and translating the idiomatic Roman date of each of these natural terms adopted in that Table, both of them must have been very correctly assumed. According to Table ii, and to the mode of reading and understanding these same Roman dates adopted in that, each of them is *two* days in excess of the truth. The question is therefore, whether these dates in their proper Roman style did really always mean what they are assumed in Table i to mean, or what they are assumed in Table ii to mean? If they always denoted what they are assumed in Table i to denote, the point for which we are contending, viz. that the first Kalends of January in the Julian Correction bore date December 30 B. C. 46 not January 1 B. C. 45, is proved. The credit of the Correction itself is maintained; and the truth of the character to which it

* If we take into account the difference between our own standard of the mean natural year and that of Delambre, (concerning which see our Fasti, iv 503 sqq. Addenda,) which is in fact the same thing as calculating these ingresses from Delambre's solar Tables, they will stand respectively as follows:

			h.	m.	s.	
Vernal Ingress	March	23	4	43	37·9	mean time from midnight
Summer solstice	June	25	1	42	55·1	.. ..
Autumnal equinox	Sept.	25	10	22	19·0	.. ..
Winter solstice	Dec.	23	5	17	16·7	.. ..

And were we to take into account the difference between the standard of Delambre and that of Bessel these dates in each of these instances would be 1 h. and 55 m. 32 s. of mean time later.

laid claim from the first, (that of being an accurate representation of the natural in terms of the civil year,) is vindicated and shewn to be no more than its due. But if they always meant what they are supposed to mean in Table ii, (which is in fact what they have always hitherto been assumed to mean,) the first Kalends of January in the Julian Æra, on that principle, will certainly bear date January 1 B. C. 45; but the two most important dates in the Correction itself, as intended to represent the natural year, must be pronounced to have been in error, and from the very first, by two days in excess. And that must seriously endanger the right of the Correction to the character which it professed to claim from the first; and the reality of the effect which it was supposed to have accomplished from the first: viz. that of delineating and laying down a perfect type and exemplar of the natural in terms of the civil year; and one too which should be as true to its original ever after as at first.

If an error of this extent in determining the cardinal dates of the Correction was actually admitted *in limine*, we may take it for granted that it was not done on purpose; nor even through inadvertency and negligence of any kind: but from ignorance and a total misapprehension of the truth. Whosoever had the charge of this part of the Correction, which concerned the determination of such important preliminaries as these; we could not account for the mistake into which he must have fallen, on any principle but that of supposing that he was *incompetent* for the duty assigned him. It remains therefore to be considered whether such incompetency, and such actual ignorance of the truth, under the circumstances of the case can with any probability be assumed of those who appear to have been *de facto* the instrumental means of the Correction.

In the first place, had the Dictator Cæsar himself been at liberty to superintend the details of the Correction, and even to execute for himself the calculations which it required; we should not be justified in assuming that he could have been capable of falling into such a mistake as this. It was part of the education of every person at Rome above the level of the vulgar in his time, to be taught all that was known of astronomy at this period in the history of that science; as

much at least as might be learnt from such works as the Phænomena of Aratus, or the institutes of Geminus: and as much as was necessarily required for the construction of one of the Parapegmata of antiquity; one of which, as it is well known, accompanied the Julian Correction, and by the ancients is familiarly called that of Cæsar. Julius Cæsar was an author on the subject of the astronomy of the time: Ἔγραψε μετάφρασιν τῶν Ἀράτου φαινομένων [y]—Exsecutus est etiam horum siderum numerum Græce Aratus poëta disertissimus, Latine vero Cæsar, et decus eloquentiæ Tullius: sed hi tantum nomina ipsorum et ortus [z]. And according to Firmicus also he wrote something on the astrology of the time too: Sed nec aliquis pæne Latinorum de hac arte institutionis libros scripsit, nisi paucos versus Julius Cæsar, et ipsos tamen de alieno opere mutuatos [a]. Nam Julius Cæsar, observes Macrobius [b], ut siderum motus de quibus non indoctos libros reliquit ab Ægyptiis disciplinis hausit; ita hoc quoque ex eadem institutione mutuatus est, ut ad solis cursum finiendi anni tempus extenderet. It may, or may not, be true that Cæsar's astronomy was ultimately derived from the Egyptians; but if it was, it could not have been learnt in a better school, according at least to the hereditary and traditional principles of the science, once received and recognized in that country: as we have shewn more at large in our former work. There was probably some historical truth in the reason which Lucan supposes him to have assigned for his visit to Egypt after Pharsalia; viz. not merely the pursuit of Pompey but also a desire to become better acquainted with so celebrated a school of astronomy as the Egyptian.

Fama quidem generi Pharias me duxit ad urbes:
Sed tamen et vestrî. media inter prælia semper
Stellarum cœlique plagis superisque vacavi:
Nec meus Eudoxi * vincetur fastibus annus [c].

* Eudoxus enim ad cursum suum post octo annos solem reverti dixit et esse annum magnum; C. Cæsar vero post quinquennium: quo peracto bis sextum esse præcepit; et melius annum visus est computasse. Vetus scholiasta.

y Suidas, Καῖσαρ Ἰούλιος. Cf. Γάϊος Ἰούλιος Καῖσαρ.

z Firmicus, De Astrologia, viii. v. p. 216.

a Firmicus, Lib. ii. Præfatio.

b Saturnalia, i. 16. 283.

c Pharsalia, x. 184.

No one at least can consider it otherwise than highly probable that the same proficiency in the science of astronomy, which was possessed by any of Cæsar's contemporaries, (his equals merely in birth, in rank, in education,) must have been possessed by Cæsar. Could Cæsar, for instance, have known less of astronomy than Cicero? Now the date of the vernal equinox B. C. 49 was rightly understood by Cicero. Must it not therefore have been equally well understood by any noble Roman of the same degree of information on such subjects? Shall we pronounce it impossible, (in the face of Cicero's own testimony,) that *he* could have been mistaken in his judgment of the true date of that natural phenomenon, B. C. 49, by as much as two days? and yet very possible that Julius Cæsar might have been so only four years later, B. C. 45? It was known to Nigidius Figulus, that the sun's place at sunrise December 5 B. C. 63 was 252°; it must therefore have been known to or expected by him that December 23, 18 days after, it would be 270°. That is, the true Julian date of the winter solstice B. C. 63 must have been known to Nigidius Figulus. Why not then to Julius Cæsar, or to any other well educated person among his contemporaries? And thus with regard to the two most important natural terms, relatively to the Julian Correction, (which were these two, the vernal equinox and the winter solstice,) there would be every reason *a priori* to conclude that they could not have been unknown to Julius Cæsar; because they appear to have been well known to others among his contemporaries, who were not better informed on such points, nor likely to know more about them than he.

But secondly, there can be no doubt that, (as was to be expected,) the properly scientific part of the process of the Correction was entrusted by Cæsar to the men of science of the day. Plutarch gave us to understand that he made use of the services of *many* eminent persons for that purpose; but, as one only has been mentioned by name, Sosigenes, we must suppose that he was the principal person, and that the most delicate and responsible part of the process, the determination of the cardinal points, was delegated to him. Now

Pliny tells us[d] he was so careful about it, and took so much pains in the execution of his commission, that he went over his work *three times, trinis commentationibus:* which was probably as often as the time allowed him for the undertaking, admitted of. And yet with all this painstaking and all this diligence, according to the second of the schemes proposed above, he must have been two days wide of the truth at last; and therefore we must suppose that he was still more so at first: for it cannot be considered probable, in a case of this kind, that his second or his third calculations would be even more erroneous than his first. What then must be the necessary inference from this fact? What but that the greatest astronomer of his day, the head of the school of Alexandria, the heir and representative of the accumulated astronomical proficiency both of the Greeks and of the Egyptians down to his own time; was really less competent for the solution of a practical problem, like this of the true date of any one of the cardinal points, than a Greek or a Roman of ordinary good education, and of common information on such subjects, (like Cicero among the Romans,) would have been.

With regard to the state of the science of astronomy in Cæsar's time, and to the degree of proficiency to which astronomers by profession may be supposed to have attained by that time; the discoveries of one age, so long as they are still remembered, are the property of all succeeding ages. They are handed down as heir-looms from one generation of students and inquirers to another; and while they are still on record and still known of they can never be deliberately disregarded. The observations of Meton, Aristarchus, Timocharis, and others were still remembered, and still referred to, in Hipparchus' time, as very valuable helps and assistances even of his own. In the school of Alexandria at least there was a long series of observations; and directed to this very point of the determination of the cardinal ingresses. It appears from Ptolemy that Hipparchus in particular must have been employed on determinations of that kind from B.C.162

[d] H. N. xviii. 57. 188. Et Sosigenes ipse *trinis commentationibus* quamquam diligentior ceteris non cessavit tamen *addubitare, ipse semet corrigendo.*

to B. C. 128 at least; and on most of them at Alexandria. It would be absurd to suppose that Sosigenes could either have been totally ignorant of these observations of his, or have derived no benefit from them. We collected together all the dates of this kind which are still upon record in the Magna Compositio of Ptolemy[e]: and it will be seen from that synopsis that even in B. C. 146, the fourth year of the cycle of leap-year, when the natural year must have gained almost 18 hours complete on the actual Julian year, Hipparchus did not determine the vernal equinox to a later Julian term than March 24, and at 5 A. M.; and B. C. 128, in the second year of the cycle, he did not make it later than March 23 at 6 P. M. We demand then whether, with the knowledge of such facts as these, and nearly 100 years after the last of these observations, when precession alone must have made a difference of almost a day in anticipation on the dates of Hipparchus, Sosigenes could possibly have determined such a natural term as the vernal equinox, in the first year of the cycle of leap-year, to a date *two* days in advance of the last of Hipparchus'? That he might determine it even then to March 23, though Hipparchus had done the same B. C. 128 also, was possible; but that he should determine it to March 25 B. C. 45, if Hipparchus determined it to March 23 B. C. 128, whether possible or not *per se*, we cannot consider to be probable*.

* There is a further argument that the first cardinal point in the Julian Correction must have been fixed by Sosigenes to March 23; in order to the explanation of which we observe as follows.

Though the details of this Correction, exactly as it proceeded from the hands of its author, have not been transmitted to posterity, testimony is uniform to one point connected with them; viz. that the cardinal dates of the Correction were assumed in *octavis partibus* (*Signorum*): the vernal equinox in the 8th degree of Aries, the summer solstice in the 8th degree of Cancer, the autumnal equinox in the 8th degree of Libra, and the winter solstice in the 8th degree of Capricorn: and yet that the actual ingresses of the sun into each of these signs respectively were assumed in *primis partibus*; i. e. in the first degrees thereof. It followed from these two assumptions that, whatsoever the calendar dates of the cardinal points might be, yet, on the principle of allowing a day in time for every degree in space or motion round the sphere, those of the actual ingresses must have been

[e] Fasti Catholici, ii. 409.

supposed to precede the corresponding dates of the cardinal points by *eight* days; the date of the ingress of the sun into Aries in the calendar must have been eight days earlier than the date of the vernal equinox in the calendar also; that of the ingress into Cancer according to the calendar must have been eight days earlier than the calendar date of the summer solstice: and so in each of the other two instances.

This peculiarity of the Julian Correction, as simply a matter of fact, has always been known to the learned; being attested by unquestionable evidence: and as it differed materially from the modern conception and delineation of the sphere, which makes no distinction between the ingresses and the cardinal points, but dates both in the first degrees of the proper signs alike, it has always appeared singular, and at first sight even inexplicable. For what could seem to be more contrary to the reason of things and to common sense than such an assumption as *this*, That the sun should be supposed to have entered the first point of Aries at a certain time, and yet that the vernal equinox should not be supposed to have arrived until *eight* days later?

The true reason and meaning of such assumptions as these could never have been understood without the knowledge of those distinctions, relating to the sphere, which were first introduced in Egypt long before the epoch of the Julian Correction. The history of these is that of the Primitive sphere; and the history of the Primitive sphere is in fact that of the Phœnix cycle, peculiar to the Egyptians also. These two subjects in conjunction occupied a very considerable portion of our former work; much too considerable to be epitomised or laid before the reader in its sum and substance merely. We have no alternative, if he desires to obtain the necessary information concerning them, but to refer him to the work itself[1].

The combination of a moveable sphere (the natural, tropical sphere) with a fixed and immoveable one, (to which we have given the name of the sphere of Mazzaroth,) first made, and in this manner, among the Egyptians at the epoch of the Phœnix cycle B. C. 1847, explains all such distinctions as these; and reconciles them to reason and common sense. In such a combination of two totally different spheres, provided the first point of the moveable did not coincide with the first of the immoveable one, but with some point therein more or less later than the first, there was no inconsistency in assuming the ingresses as one thing and the cardinal points as another: we have only to bear in mind that the ingresses were referred to the immoveable sphere, and the cardinal points to the tropical; and that the former were intended of the first degrees of the proper signs in their own sphere, the latter of the first degrees of the proper signs of their own sphere also, but of such degrees of the corresponding signs of the former sphere as the first of their own were falling in at the time.

In the original combination of the two spheres, which was made at the

[1] Fasti Catholici, iii. 199 to the end, Diss. xv: iv. 1–148. Diss. xv. part ii: iii. 280 sqq. Diss. xv. ch. iv. sect. iv–x: iii. 349. Diss. xv. ch. vi. sect. i–xiii: iii. 420. Diss. xv. ch. vii. sect. i–viii; iii. 475. Diss. xv. ch. viii. sect. vi.

epoch of the first Phœnix period, B. C. 1847, the cardinal points of the moveable or tropical sphere happened to be falling in the *fifteenth* degrees of the moveable one. They were assumed accordingly; and this is that delineation of the natural or tropical sphere, which has been handed down as graduated in xvis partibus: the first in fact and the oldest of all. At the epoch of the second Phœnix period, B. C. 1347, when the relations of the two spheres one to the other were revised, and laid down afresh in conformity to the changes which time itself had made in them, the cardinal points of the moveable were found to be falling in the *twelfth* degrees of the immoveable sphere; and they were assumed at that time and defined accordingly. *This* is that type of the sphere of which the ancients speak as laid down in xiis partibus; the second in the order of time, and the next in antiquity to the former. At the epoch of the third Phœnix period, B. C. 848, when the two spheres were revised and readjusted for the second time, the cardinal points of the tropical sphere were found to be falling in the eighth degrees of the sphere of Mazzaroth; and they were fixed and defined at that time accordingly. *This* is that delineation of the sphere of nature of which mention is made anciently (more frequently than of any other) as graduated in viiis partibus; and it is not only the third in order, but also the last which was ever made among the Egyptians.

The intelligent reader will readily comprehend that these successive changes of the relation of the tropical or moveable sphere to the sphere of Mazzaroth or the immoveable sphere, from the xvth degrees to the xiith, and from the xiith to the viiith, were simply the effect of time; and of what is meant by *precession*, in the sense of the anticipation of the mean natural year on the mean Julian perpetually. According to the standard of the mean natural year, which was assumed in the Phœnix period, the rate of this anticipation or precession was precisely *three* days *twenty-one* hours of mean solar time, in every period of 500 mean natural or mean or actual Julian years. The calendar of Mazzaroth which served as the standard of reference for the mean natural year perpetually was to all intents and purposes a Julian calendar[2]; the terms of which remained nominally always the same, while the Julian dates of the corresponding natural terms, (as constantly subjected to the effect of precession in the sense explained,) were constantly changing their Julian style and denomination.

This second revision of the sphere, in exact conformity to the true theory and actual administration of the Phœnix cycle from B. C. 1847 to B. C. 848, was the last which ever took place in Egypt; and as all the nations of antiquity, (without exception so far as we know,) derived their sphere from the Egyptians, and none of them, except the Chaldeans, earlier than this last revision, it follows that the sphere thus graduated and laid down in *octavis partibus* is that which passed out of Egypt into the rest of the ancient world. We are able at least to prove that *this* was the sphere, and

[2] Fasti, iii. 305. Introduction, 196. Part iii. ch. i. sect. i.

this that form of the sphere, which passed into Arabia, into India, into China, into Persia, and into Greece. There was no reason indeed *a priori* why a third revision of the original sphere might not have been expected even in Egypt, B. C. 348; in which too, agreeably to the analogy of all before it, the cardinal points of the tropical should have been assumed and laid down in *quartis partibus* of the sphere of Mazzaroth. In point of fact however none *then* took place [3].

The ancient Egyptians, who first conceived this idea of the combination of the two spheres, had a very just and correct apprehension of the relation of the mean natural year to the mean Julian; and consequently of that of the tropical sphere to the sphere of Mazzaroth. They were well aware that the former was liable to recede on the latter at a fixed rate every year; nor is there any reason why we should not suppose that they expected this recession to go on in the same way and at the same rate perpetually: nor even that their original scheme of the combination of the two spheres, and of the delineation of one in terms of the other, was not forecast and pre-adjusted accordingly [4]. But, (as it is very important to observe,) 50 years only after the last revision, which left the cardinal points in the one attached to the eighth degrees in the other, a very different doctrine began to be broached in Egypt itself; borrowed indeed from Chaldæa, but adopted at this point of time (if not exactly in the same form, yet in one analogous to it and only a modification of it) among the Egyptians [5].

In this doctrine it was assumed that the recession of the tropical sphere in terms of the sphere of Mazzaroth would go on for a limited time and to a limited extent; and would then be succeeded by a reaction in the contrary direction for the same time and to the same extent: and that this alternate recession one way and precession the other way would be perpetual; the rate of the motion in either direction being assumed at one degree in 80 years, and the limits of the motion from the end of the 8th to the beginning of the 1st degree *in antecedentia* of the sphere of Mazzaroth, and from the beginning of the 1st to the end of the 8th again *in consequentia* in the same. This theory and this doctrine, having once been brought into vogue in Egypt, and recommended by the authority of the Egyptians, took firm possession of the minds of the astronomers of antiquity everywhere; and of those of the Greeks among the rest, down to the time of Hipparchus at least. And even Hipparchus, as we may possibly see hereafter, for a time was not free from the common prejudice in its favour, any more than his predecessors among the Greeks; though it is unquestionable that he must have emancipated himself from it at last, and guided by the testimony of nature and by his own more correct observation must have entirely cast it off [6].

From the brief account of this theory given by Theon [7] it does not distinctly appear whether the first degree of the sphere of Mazzaroth was assumed by it to have been an absolutely fixed and immoveable point, which

3 Fasti, iii. 421: Diss. xv. ch. vii. sect. i.

4 Ibid. 290—305 : 475—482 : iv. 104, note.

5 Fasti, iii. 307: 439 sqq.

6 Ibid. 309-312.

7 Ibid. 439 sqq.

the first degree of the tropical might come up to, but could not pass beyond; or whether while the first degree of the tropical sphere was receding eight degrees in antecedentia, this first degree of the sphere of Mazzaroth was not receding eight degrees in antecedentia also: so that the distance of the former from the latter, and vice versa, assumed to have been eight degrees at first, should be eight degrees ever after also. Yet this appears to have been the precise nature of the Chaldaïc doctrine of the same kind, on which this Egyptian one was ultimately founded [8]. The only difference between the two was that, according to the original theory and assumptions of the Chaldees, the constant and invariable distance between the first degree of the moveable sphere and the first of the immoveable, and at all points of the recession *in antecedentia* and of the precession *in consequentia* alike, was twice *ten* degrees; according to the Egyptian modification of the Chaldean theory it was always *eight* degrees. It is capable of being proved too that in the time of Thales (B. C. 601) *this* was the form of the doctrine in question actually recognized in Egypt itself; from which fact it is only a natural inference that such must have been the form in which it was proposed and received among the Egyptians at first.

It is very important to be aware of the true date of the first introduction of this peculiar doctrine, B. C. 798; and that it was consequently long anterior to the date of the Julian Correction, and yet must have had a sensible influence on that Correction itself: for the anomaly which we began with pointing out, as the most characteristic distinction of that Correction, the apparent inconsistency of assuming the ingresses in the *first* degrees and the cardinal points in the *eighth* degrees, after what has been premised requires only to be stated to be seen to be closely connected with it.

It was assumed by this doctrine that the rate of the recession in antecedentia, and that of the precession in consequentia, was one degree in 80 years perpetually. Consequently, the limit of the motion in either direction being *eight* degrees exactly, the period was 640 years exactly also. If then the first period of this kind was supposed to have begun B. C. 798, it must be expected to come to an end B. C. 158; and testimony is still extant to the fact that such was actually supposed to have been the case [9]. On this principle, if the first point of the sphere of Mazzaroth had been receding at the same rate and in the same direction, that would be supposed to be attached to 352° and 353°, while the first of the tropical sphere was still attached to 360° and 361, B. C. 158°. In this case, the ingresses, understood of the former sphere, would be one thing, and the cardinal points, understood of the latter, would be another; and there would be no impropriety in supposing that the sun would attain to the first point in the former eight days before he would do so to the first in the latter. And if the Julian date of the first point in the tropical sphere B. C. 158 was assumed to be critically between March 23 and 24; that of the first point of the sphere of Mazzaroth, eight days earlier, would be assumed critically between March 15 and 16.

8 Cf. Vol. iii. 350. Horoscope of Augustus. 9 Fasti, iii. 308: 444.

After B. C. 672 however the true Julian date of the epoch of the calendar of Mazzaroth was not March 24 but March 23; and on the assumptions and according to the principles of the doctrine in question that would make a difference of 80 years in the time when the first point of the tropical sphere could be supposed to have been brought up to the epoch of the sphere of Mazzaroth. It would be 80 years later than B. C. 158. Accordingly it is seen from our general Tables that B. C. 78 the vernal equinox was actually falling very nearly at the point of midnight March 24; and the next year B. C. 77, (in the first year of the cycle of leap year,) not long after the point of midnight March 23: so near in fact to the point of midnight even then that with not much greater an anticipation on its true date than is seen to have been admitted in Hipparchus' calculations of the same kind, B. C. 162–128, (i. e. 5 or 6 hours at least,) it might actually be supposed to have been falling at the point of midnight itself. At least if it was falling on March 23 only nine or ten hours after midnight B. C. 77; it must be falling still nearer to the point of midnight March 23 B. C. 45, just 32 years later: as in fact we have seen from actual calculation that it was. Nothing then might be more confidently assumed B. C. 45 than that the first point in the tropical sphere was falling at that time on the proper epoch of the sphere of Mazzaroth, March 23; and in every year of the Julian cycle of leap year alike: which could not have been the case unless it was also falling on that day at the point of midnight, or very near it.

There is no reason to suppose that Sosigenes, whom Cæsar entrusted with the astronomical part of his Correction, was superior to this old and traditionary prejudice of the relation of the cardinal points in the tropical sphere to certain corresponding points in a different sphere like that of Mazzaroth; and of the liability of each to go backwards and forwards within certain fixed limits, preserving the same relation to each other perpetually[10]. Whosoever was the author of the astronomical details of the Julian Correction, he must have been aware of this doctrine; and not only must have been aware of it, but must have approved of it, and must have adopted it. These details themselves bear witness to that fact. There was a double sphere in the Julian scheme of the ecliptic, one laid down in terms of the other; and there was a double set of signs, in one of which the ingresses were dated in the first degrees and in the other in the eighth of one and the same notation; the former the sphere of Mazzaroth, the latter the tropical sphere; and the notation, common to both, that of the sphere in the abstract: which is nothing but the ecliptic, supposed to be divided on any principle into twelve equal spaces of 30 parts or 30 degrees each. The cardinal points, as contradistinguished to the ingresses, were the first degrees of these signs in the tropical sphere; the ingresses, as contradistinguished to the cardinal points, were the first degrees of the same in the sphere of Mazzaroth. We may justly therefore contend that, as the ingresses in the Julian calendar were laid down in the *first* degrees, and the cardinal points in the *eighth* degrees, and the Julian dates of the former were assumed eight days earlier than those of the latter all round

10 Fasti iii. 319, 320.

the sphere; in adjusting the details of the Julian Correction an equal regard must have been paid to the sphere of Mazzaroth and to the tropical sphere: and from *this* fact, along with the *other*, viz. that just at the time of the Julian Correction, B. C. 45, the first point of the tropical sphere was coinciding with the proper and normal epoch of the sphere of Mazzaroth, March 23, (and agreeably to the Julian rule, March 23 at midnight); we may safely draw the inference that Sosigenes could not possibly at that time have attached the first cardinal point in the Correction, the vernal equinox, to any Julian term but March 23. In this Julian term he could not have been mistaken. The proper Julian epoch of the sphere of Mazzaroth of this time, wheresoever any thing was known of that sphere at all, was known to be March 23. If he purposely attached his first natural term to the proper epoch of the sphere of Mazzaroth, he must have attached it to March 23; and, though such a combination of these two things at *any other* time might have been arbitrary or positive, it could not have been so at *this* time, when the first term in the natural or tropical sphere was actually falling on March 23.

We shall now pass to some general observations on the part taken in the Correction by Sosigenes; and on other points connected with the Correction.

In the first place, when Pliny speaks of three *commentationes* of this astronomer, it seems to be most reasonable to understand him of three series of observations; and that would require three years. We have not been told *when* or *where* he was commissioned by Cæsar to execute the part which has been attributed to him. But if it was not less than three years before the Correction, it could not have been later than B. C. 49. In our opinion he was probably engaged on these preliminaries of the Correction from the vernal equinox B. C. 49 to the summer solstice B. C. 47: and we have seen that Cæsar himself was at Rome B. C. 50–49, though he had never been there before since B. C. 59 or 58.

It is a singular coincidence that in the last of these three years, B. C. 47, the true vernal equinox, for the meridian of Rome, was falling 16 or 17 hours from midnight March 23; and might very possibly have been determined by observation that year to March 23 at noon. The actual scheme of the natural in terms of the Julian year delineated by Sosigenes has not been left on record; nor the lengths of the different quarters, assumed by him: at least, not in so many words. Such lengths have been assigned by Varro [11]; but these appear to be his own, not Sosigenes'. And though he too assumes the cardinal points in the 8th degrees; these are not the 8th degrees of the same signs in his sphere as in the Julian. *His* first point for instance is assumed in the 23° of Aquarius; that in the Julian sphere was so in the 23° of Pisces. The only statement which we have met with, founded apparently on the actual division of the quarters in the original scheme of the Julian year, is the following of Pliny's [12]: Cardo temporum quadripartita anni distinctione constat per incrementa lucis. augetur. hæc a bruma, et æquatur noctibus verno æquinoctio, diebus xc horis tribus. deinde superat noctes ad solstitium diebus xciii horis duodecim usque ad æquinoctium auctumni; et tum æquata die procedit ex eo ad

11 De Re Rustica, i. 28. p. 189.

12 H. N. xviii. 59.

brumam diebus lxxxix (corrige lxxxiix) horis tribus. horæ nunc in omni accessione æquinoctiales non cujuscumque diei significantur. omnesque eæ differentiæ fiunt in octavis partibus signorum.

It is manifest that in this estimation the length of the spring quarter is supposed to be equal to that of the summer quarter, and each to be 93 days 12 hours of mean or equinoctial time exactly; both together 187 days. The autumnal quarter (with the correction pointed out) is reckoned at 88 days 3 hours of equinoctial time, and the winter quarter at 90 days 3 hours of the same; both together at 178 days 6 hours. These four quarters all together make up the sum of 365 days 6 hours exactly; that is, the mean Julian year. And as the mean Julian year was assumed in the Julian Correction to be the absolute standard of the natural year, this coincidence places it almost beyond a question that Pliny has given us in the above the actual divisions of the natural year made by Sosigenes, and recognized in the Julian Correction.

These lengths being compared with those in our Tables for the same epoch or point of time [13], the first will be seen to have been in defect of the truth; the second in excess: the third also in excess; but the fourth to have been very near the truth. We cannot help suspecting that this division of the first half of the year into two equal periods of 93 days 12 hours each was ultimately due to the determination of the vernal equinox B. C. 49 to midnight, and B. C. 48 to 6 A. M. and B. C. 47 to noon. These determinations in themselves, and at that time, were possible; and would involve no greater an amount of error than those of Hipparchus B. C. 162–128 had done. The standard of the natural year being assumed at 365 days 6 hours of mean time, if the V. E. B. C. 49 had been determined to midnight, B. C. 48 it would be determined to 6 A. M., and B. C. 47 to noon; almost as matter of course. Its true date B. C. 49, as we have seen, calculated from our own Tables, for the meridian of Rome was 4h. 9m. 49.8 sec. after midnight March 23.

On this principle B. C. 49 being the first year of the cycle of Leap-year, and B. C. 45 being the same; the proper representation of the latter year would be derivable from the former as follows:

Natural years in terms of the Julian, B. C. 49 *or* B. C. 45, *according to Sosigenes.*

			h.	m.	
Vernal equinox	March	23	0	0	at Rome B. C. 45
i quarter		93	12		.. ..
Summer solstice	June	24	12		.. ..
ii quarter		93	12		
Autumnal equinox	Sept.	26	0		.. ..
iii quarter		88	3		
Winter solstice	Dec.	23	3		.. ..
iv quarter		90	3		
Vernal equinox	March	23	6		B. C. 44

[13] Introduction, Appendix, Table ii. page vii.

And these being compared with the actual dates of the same natural terms from actual calculation, proposed supra [14], are perceived not to have been very far from the truth; as near to it perhaps as any of the determinations of equal antiquity, not excepting those of Hipparchus *.

These natural dates so determined in terms of the civil year, compared with the calendar dates of the same things, the viii Kal. Apriles, the viii Kal. Julias, the viii Kal. Octobres, and the viii Kal. Januarias, are seen to be the same with them in two of the number only, the first and the last; the date of the vernal equinox and the date of the winter solstice. The calendar date of the summer solstice was two days in defect; and that of the autumnal equinox was four in defect, in comparison of the same thus determined. The vernal equinox and the winter solstice were the two principal natural terms in the Julian Correction. It was considered an essential point that each of these even in the calendar should be strictly in conformity to the truth. With regard to the other two, a cyclical date, which followed the analogy of the other two in the style of the calendar, a. d. viii Kalendas, was regarded as admissible. The above date of the summer solstice June 24 would have required vi Kalendas Julias, June 26 Roman or June 24 Julian. And this date actually occurs for it in the Fasti of Ovid [15]; and in the Venusine calendar, and in the Parapegma of Columella. The 26th of September in like manner, for the autumnal equinox, would have required the iv Kalendas Octobres, September 28 Roman September 26 Julian.

Again, the ingresses, if dated all round the sphere on the principle which has been explained, (i. e. in the eighth degrees before the corresponding points in the tropical sphere,) must have been laid down as follows:

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[14] Page 51. [15] vi. 789.

* It is observable that in Ausonius, (Eclogæ 371. Ratio dierum anni vertentis, 1–18. cf. 384. 1–7,) the lengths of the different quarters are stated as follows:

Spring quarter	94 d.	12 h.
Summer	92 d.	12 h.
Autumnal	88 d.	6 h.
Winter	90 d.	0 h.

In all 365 days 6 hours—which recognizes the length of the natural year, assumed in the Julian Correction; and in other respects, though not absolutely the same with the above scheme of Sosigenes', seems to be only a modification of it.

Sphere of Mazzaroth in the Julian Correction.

		Midnight.			Midnight.
i Krion	352°–353°	xv K. Apriles	iv Karkinon	82°– 83°	xv K. Julias
ii Tauron	22°– 23°		v Leonton	112°–113°	
iii Didymon	52°– 53°		vi Parthenon	142°–143°	

		Midnight.			Midnight.
vii Zygon	172°–173°	xv K. Octobres	x Ægon	262°–263°	xv K. Jan.
viii Scorpion	202°–203°		xi Hydron	292°–293°	
ix Toxon	232°–233°		xii Ichthyon	322°–323°	

These ingresses must be understood in each instance of the end of one of these terms in the sphere and the beginning of the next; i. e. critically of the middle point between the two. As cyclically reckoned, it is probable that each was dated at midnight. The Julian dates in the calendar corresponding to these in the sphere might perhaps be assignable from Varro, Ovid, Collumella, Pliny; and from certain fragments of the Julian calendar, and from other data, compared together: but there would still be a degree of uncertainty about them which would render it scarcely worth our while to undertake to fix them. The lengths of the months in the Julian calendar were determined in a great measure by those of the months of the old. They must have been remodelled entirely, if they were to be adjusted to the actual passages of the sun through the different signs. There could not consequently be a fresh ingress a. d. xv Kal. of every month, which should be true to nature, all round the sphere. On the whole however nine natural signs would be included between the viii Kal. Apriles the date of the vernal equinox, and the viii Kal. Januarias that of the winter solstice. In the Julian calendar from one of these terms to the other there are 275 days: in the mean natural year itself, according to our standard [16], nine signs = 273 days 22 h. 21 m. 37·8 sec: in the calendar of Mazzaroth they = 274 days, only one day less than in the Julian. In the Julian calendar itself indeed, as we have already observed [17], the length of the spring quarter could be neither more nor less than that of the interval between the viii Kal. Apriles and the viii Kal. Julias; i. e. 91 days: nor the length of the summer quarter more or less than the interval between the viii Kal. Julias and the viii Kalendas Octobres, 92 days; nor that of the autumnal quarter than the number of days from the viii Kal. Octobres to viii Kal. Januarias, 92 also: nor that of the winter quarter than the number from the viii Kal Januarias to the viii Kal. Apriles; 90 days in the common years of the cycle of leap-year, and 91 days in the leap-year. And on this principle do the lengths of these quarters all round the year appear to have been estimated by Isidore [18]; though his numbers, as his text stands at present, are corrupt.

16 Introduction, Appendix, P. ii. Table i. 17 Supra, page 48, 49. 18 249 C. De Rerum Natura, vii.

To the peculiar rule of the Julian calendar, (that of dating the cardinal points in Octavis Partibus,) we produced some testimonies in our former work [19]. We subjoin some more here to the same effect:

i Columella: Æquinoctium vernum [20]	ix Kal. Apriles
	viii Kal. Apriles
Solstitium [21]	viii Kal. Julias
	vii Kal. Julias
	vi Kal. Julias
Solstitium [22]	ix Kal. Julias
	viii Kal. Julias
Æquinoctium Libræ [23]	viii Kal. Octobres
	vii Kal. Octobres
	vi Kal. Octobres

Ab Æquinoctio primo quod mense Martio circa viii Kalendas Apriles in octava parte Arietis conficitur [24]—Ab exortu Vergiliarum (v Idus Maias) ad solstitium, quod fit ultimo mense Junio circa octavam partem Cancri, fere examinant alvi [25]—Solstitium quod ultima parte mensis Junii [26]—Autumnale æquinoctium, quod fere conficitur ix Kalendas Octobres [27]—Autumni æquinoctio quod est ante Kalendas Octobris cum octavam partem Libræ sol attigit [28]—Ab æquinoctio deinde quod conficitur circa viii Kal. Octobris [29]—Ad brumam quæ fere conficitur circa viii Kalendas Januarii in octava parte Capricorni [30]—Vergiliarum occasus ix Kalendas Novembres (Oct. 24): Bruma conficitur diebus xlvi + xv postea [31] (Dec. 24 Roman = Dec. 25 Julian of Columella's time).

These dates of Columella shew that, besides the viii Kalendas, the ix Kalendas and the vii and even the vi Kalendas were recognized also. They confirm our assertion [32] that *three* days were assigned in the calendar to each of the cardinal points, the ix the viii and the vii Kalendas respectively; of which the proper calendar date, the viii Kalendas, was critically the middle one.

ii. Pliny: Bis æquata nocte diei vere et auctumno .... octavis in partibus Arietis et Libræ [33]—Æquinoctium vernum a. d. viii Kalendas Aprilis peragi videtur [34]—viii Kalendas Julii longissima dies totius anni et nox brevissima solstitium conficiunt [34]—Ipsum æquinoctii sidus viii Kalendas Octobres [34]—Bis permutatis spatiis, in auctum diei bruma, octava in parte

19 iii. 425 sqq.
20 De Re Rustica, xi. ii. § 31. Cf. De Arboribus, v. § 5.
21 De Re Rustica, xi. ii. § 49.
22 Ibid. ii. iv. § 4.
23 Ibid. xi. ii. § 66. Cf. iii. § 8.
24 Ibid. ix. xiv. § 1.
25 Ibid. § 5.
26 Ibid. viii. xiv. § 4.
27 Ibid. ii. viii. 2.
28 Columella, De Re Rustica, ix. xiv. 10.
29 Ibid. 11.
30 Ibid. 12.
31 Ibid. i. viii. 2: 3.
32 Supra and infra.
33 H. N. ii. 17.
34 Ibid. xviii. 66. 214: 67. § 3. 222: 74. 258: 68. § 1. 226: 69. § 4. 242: 59. 74. 264.

ii. *Julian date of the Summer Solstice in the Julian Correction.*

i. Testimony of Livy. It has been seen from the account of proceedings before the battle of Pydna, B. C. 168[f], that it was known to have taken place at midsummer in the natural year. An allusion occurs to the season of the year in Livy's account of this battle; where he is speaking of the discipline kept up among his soldiers by Æmilius Paullus, from the time of his arrival at the army, which was some days before the battle: Id quum æstivis diebus urente adsiduo sole fieret tot horarum æstus. The thirty-sixth chapter of this xlivth book is imperfect; but what remains of it opens as follows:

Capricorni, noctis vero solstitio, totidem in partibus Cancri[35]—A Bruma ad Arcturi exortum dies lx[36] (Dec. 25 Roman to Feb. 23 Roman.)

iii. Palladius: Verno maxime, die nono Kalendarum Aprilium[37]—viii Kalendas Apriles[38]—Æquinoctium (vernum) viii Kalendas Apriles: solis institium viii Kalendas Julias: Æquinoctium (auctumni) viii Kalendas Octobres: Hiemis initium sive Tropæ Chimerinæ (latter half of December)[39]—Solstitium vii (corr. viii) Kalendas Julias[40]—viii Kal. Jan. Nat. Invicti, that is of the sun[40]——Servius: Summer solstice, viii Kal. Julias[41]: — Winter solstice, viii Kal. Januarias[42] — Vernal equinox, viii Kalendas Apriles: Autumnal equinox, viii Kalendas Octobres[43]——Florentinus[44]: Solstitium æstivum viii Kalendas Julias: vi Kalendas Julias: Æquinoctium vernum viii Kal. Apriles, ix Kal. Apriles[45]: Æquinoctium autumnale viii Kalendas Octobres; vi Kalendas Octobres[46]——Didymus[47]: Æquinoctium vernum viii Kal. Apriles: Æquinoctium Libræ viii Kal. Octobres——Isidore: Libram autem vocaverunt ab æqualitate mensis ipsius: quod octavo Kal. Octobres sol per illud signum currens æquinoctium facit[48]—Summer solstice viii Kal. Julias: Autumnal equinox viii Kal. Octobres: Winter solstice viii Kal. Januarias: Vernal equinox viii Kal. Apriles[49].

35 H. N. ii. 17: cf. 41.
36 Ibid. xi. 15. 262. cf. xviii. 65. 207: ad vii Kal. Martias.
37 De Re Rust. iii. Tit. xxv. 28: cf. iv. Tit. x. 37.
38 Ibid. v. ii. 3.
39 Kalendarium Rusticum. Apud SS. De Re Rust. p. 852.
40 Kalendarium Constantianum.
41 Ad Georgica, i. 100: cf. ad Eclog. iii. 104, 105.
42 Ibid. Cf. ad Georg. i. 211: Æn. vii. 720.
43 Ibid. Cf. ad Georg. i. 208.
44 Apud Geoponica, i. 1.
45 Cf. ii. 38. 40.
46 Cf. xiv. 7: ix. 4.
47 Apud Geoponica, ii. 14.
48 Origines, iii. 70. 31 E.
49 Ibid. v. 34. 41 E. Cf. De Nat. Rerum, viii. 209 E. De Officiis, i. 38. 400 A.

[f] Vol. iii. 159.

[g] xliv. 33.

(Tempus) anni post circumactum solstitium erat: hora diei jam ad meridiem vergebat: iter multo pulvere et incalescente sole factum erat. The context[h] shews that the day before the battle is meant in this description; the day before the night on which the moon was eclipsed, that of the iii Nonas Septembres Roman June 21 Julian[i].

It seems then that according to Livy the solstice of summer had arrived by June 21 B. C. 168. And yet the true summer solstice that year was not earlier than June 26, nor the mean than June 25. He could not therefore in this allusion have been thinking of the true date of this natural phenomenon for the time being. Of what then could he have been thinking, but the actual solstitial date of his own time, and in the Julian calendar of his own time? And if so, how could the date which he recognizes here, June 21, be reconciled with the commonly received date of the summer solstice in the Julian Correction, June 24, as the true Julian exponent of the Roman date of the solstice the viii Kalendas Julias? Nor let it be objected that the date which he actually recognizes is June 21; but that for which we are contending is June 22. The truth is that, in each of these instances of the definition of the cardinal terms of the natural in the civil year, the rule appears to have been *this;* of allowing *three* days for the transaction of each of these ingresses, one before the proper calendar date of the ingress and one after it, besides that date itself: which was the middle one of the three. On this principle each of the cardinal points had a triple date in the calendar, the ix Kal. the viii Kal. and the vii Kalendas of the ensuing month; and it might be expressed and represented by any one of the three *pro re nata.* The date which Livy recognizes in the present instance is the first of the three; the *first* of which the natural phenomenon in question could have been predicated in his time, the ix Kalendas Julias. And yet it is very observable that, though his language is such as to imply that he considered the solstice to have arrived on or by that day, it is not such as to intimate that he thought it was over or past on that day. Tempus anni post *circumactum solstitium* erat. The solstice had come round on that day; the course of sol-

[h] xliv. 36—41. [i] Cf ibid. 37—41.

stitial time had been brought *to* that day, but it was not yet past it. This language is natural and intelligible in one who knew that the solstice *de facto* was spread over *three* days; and required three days for its transaction: the first of which was June 21.

ii. Testimony of Dionysius of Halicarnassus. If we are permitted in due time to treat of the Hellenic calendar, we shall have occasion to consider the testimonies of antiquity to the date of the capture of Troy; the traditionary date of that kind: which had been preserved among the Greeks all along in strict conformity to the actual matter of fact; though it has never yet been understood by the learned. And among other testimonies of this kind, we shall have to adduce and explain that of Dionysius of Halicarnassus; whose date, though not the true, was nevertheless ultimately founded upon the same tradition which perpetuated the true. It is known, of course, to the learned that this date is the 23rd of the Attic Thargelion; 37 days, according to Dionysius, before the end of the Attic year, and 17 days before the solstice of summer, which preceded the end of the year by 20 days. But it has never been shewn by what sort of process he arrived at this date. And yet that may be done, and satisfactorily also; if we may only assume that he considered the vulgar Metonic cycle of the Attic calendar of his own time (B. C. 7) to have been just as much in use at the time of the capture of Troy (for which he adopted the date of Eratosthenes, B. C. 1183), or just as applicable to the determination of a lunar or a solar date at that time as in his own: and to that assumption there can be no objection; because it is implied in his own reasonings and in his own calculations themselves. By means of this clue it is easy to unravel the process of his calculation; and his date of the capture, Thargelion 23, turns out to be June 4, and therefore his date of the summer solstice to be June 22: with this difference only that he reckoned it exclusively both of the 17 days from Thargelion 23 up to the solstice, and of the 20 days after the solstice up to the first of Hekatombæon in the next Attic year. But the summer solstitial date itself, recognized by him, is June 22. And this is so different not merely from the true date of the solstice for such an epoch as B. C. 1183,

but also from the vulgar Metonic date of the solstice June 27, and from the actual date of the solstice in his own time, June 24 or 25; that it could never have been intended of any of them. It must have been taken from that solstitial date with which it agreed exactly; the summer solstitial date of the Julian calendar of his time: the viii Kalendas Julias, rightly understood; i. e. interpreted of June 22 not of June 24.

iii. Testimony of Appian. From Appian's account of the proceedings between Augustus Cæsar (at this time still known only by the name of Cæsar Octavianus[k]) and Sextus Pompeius, it appears that the day expressly appointed for the putting to sea of the combined fleet under Cæsar and Agrippa, at the commencement of the naval campaign of the year, was the Kalends of Quinctilis or Julius. The year is not of much importance to our purpose at present; but there can be no doubt that it was the consular year of Lucius Gellius and Cocceius Nerva[l], U. C. 718 B. C. 36.

Let us observe then in what terms Appian defines this day[m]: *Καὶ τῆς ἀναγωγῆς τοῦ Καίσαρος ἡ ἡμέρα προείρητο πᾶσι, καὶ ἦν δεκάτη τροπῶν θερινῶν, ἥντινα Ῥωμαῖοι νουμηνίαν ἔχουσι τοῦ μηνὸς ὄν, ἐπὶ τιμῇ τοῦ Καίσαρος τοῦ πρoτέρου, Ἰούλιον ἀντὶ Κυϊντιλίου καλοῦσι. τήνδε μὲν ὁ Καῖσαρ ὥρισε τὴν ἡμέραν αἰσιούμενος ἴσως, διὰ τὸν πατέρα νικηφόρον αἰεὶ γενόμενον.* He adds[n]: *Γενομένης δὲ τῆς νουμηνίας ἀνήγοντο πάντες ἅμα ἠοῖ.*

It is fortunate that he has designated the day in question both by its place in the calendar, the first of July, and by its distance from the solstice, the tenth day. The former must determine the latter, even if the Greek idiom, employed in the enunciation of this distance, did not do so. *Δεκάτη τροπῶν θερινῶν*, referred to the first of July, according to the Greek idiom could denote only June 22; and the tenth day before July 1 in like manner could be only June 22 also.

[k] Cf. Dio, xlvi. 47. B. C. 43: xlv. 5.

[l] Dio, xlviii. 54: cf. 49. Appian, B. C. v. 92. 95. This appears from the context of Appian; beginning B. C. 38 (B. C. v. 77. Cf. Dio, xlviii. 45. 43: (36. 34): Sueton. Aug. xvi.) with the second rupture between Cæsar and Sex. Pompeius, down to the battle which decided the war (B. C. v. 121: cf. 100—117: 118—122: 129: 130: 132: Vell. Pat. ii. 79): especially when compared with Livy, Epitome cxxviii, cxxix, the Fasti Triumphales, the Amiternine Calendar, in Sept. 2, and Dio Cassius, xlviii. 43. 45: xlix. 10. 15: Orosius, vi. 18. Appian, v. 132, observes that Cæsar was 28 years old this year; and that was the case after September 23 Roman B. C. 36.

[m] B. C. v. 97.

[n] Ibid. 98.

In either case the solstitial date thus determined must have been June 22. It follows consequently that the date of the summer solstice, recognized by Appian, was neither June 24 nor June 23; but June 22: i. e. critically and exactly the date denoted by viii Kalendas Julias, rightly understood and interpreted from the first.

It is no objection that B. C. 36, because of the actual relation of the Roman to the Julian Kalends, the viii Kalendas Julias was falling on June 23; nor yet that the same might also be the case even in Appian's own time, as we may possibly see hereafter. It is clear that the date which he qualifies in this manner, as the δεκάτη τροπῶν θερινῶν, the day appointed for the sailing of the fleet of Augustus, had not been historically recorded in those terms; but simply as the first of July in the Roman style: i. e. as the Kalends of July. The rest is an addition of his own. He chose to qualify this day, for some reason or other, (and probably for no other but its proximity to that natural term itself,) as the tenth day after the summer solstice; i. e. after midsummer: and that necessarily determines his date of the summer solstice to June 22, in the same sense in which the Kalends of July were determinable to July 1. And from this it must follow that the proper calendar date of the summer solstice in the calendar by which he reckoned was nine days earlier than that of the Kalends of July in the same calendar also. Consequently if the latter was July 1 the former was June 22; and *vice versa*, if the former was June 22, the latter was July 1.

We have thought it worth while to calculate the full moon of July B. C. 36; and we have found it:

	h.	m.	s.	
July 2	11	49	13·1	mean time for the meridian of Greenwich.
July 2	12	39	2·1	mean time for that of Rome.

The true Julian date of the Kalends of July the same year, as our calendar shews, was June 30. It follows that Augustus was putting to sea on this occasion two days before the full of the moon; i. e. at the finest and most favourable period, as it might be supposed, of the lunar month: which had probably as much to do with the choice of the day as the

reason assigned for it by Appian; the name of the month and its relation to Julius Cæsar. From the prejudice too, recorded of Augustus[o], against setting out on a journey (much less on an expedition like this) on the day after the Nundinal day, we might safely have inferred that the Kalends of July this year did not fall on the Feria secunda of the Nundinal cycle. Our calendar shews that they fell in reality on the Feria septima.

These testimonies then of Livy, Dionysius of Halicarnassus, and Appian in this one respect agree together; so far that each of them at a different time recognizes one and the same Julian term, June 21 or 22, as the proper date of the summer solstice: yet under and through its proper date in the Roman style, viii Kalendas Julias, notwithstanding. If so, the proper meaning of this Roman date of viii Kalendas Julias for this one natural term, the summer solstice, reduced to the style of the modern Julian calendar, must always have been June 22. To understand it of June 24 is a prejudice, and nothing more; which has been misled by names and nominal coincidences, without any regard to things and their real distinctions. We cannot however come to this conclusion concerning the true meaning of the Roman date of this *one* natural term, the summer solstice, in the Julian Correction from the first, and not come to the same respecting that of the date of the vernal equinox, and that of the date of the autumnal equinox, and that of the date of the winter solstice, in the same Correction from the first also. Each of these must really have denoted a Julian term two days earlier than what it has been commonly supposed to have done. It follows (and that is the point for which we are contending all this time) that the first Kalends of January in the Julian Correction must have borne date December 30 B. C. 46; not January 1 B. C. 45.

iii. *Lunar Character of March* 5 *Roman,* B. C. 45.

Julius Cæsar set out from Rome to the Bellum Hispanicum (against the partisans of Cn. Pompeius in Spain) in the first year of the Julian Æra, the year after the correction of the calendar, B. C. 45 itself[p]; and the proceedings in that

[o] Suetonius, Vita, xcii. 6. Cf. Vol. ii. 49, note.

[p] Dio, xliii. 28: 31.

war are still upon record, from the time of his departure to that of the decisive battle of Munda[q]: the date of which was the Roman Dionysia, the Liberalia of the Roman calendar[r], March 17 Roman[s].

But the most circumstantial account of this Spanish campaign is given by the Auctor De Bello Hispanico; which history commonly accompanies that of Cæsar De Bello Gallico and De Bello Civili, and that of the Auctor De Bello Alexandrino and De Bello Africano: though no more is known of the author himself at present than what may be collected from the internal evidence of his own account; viz. that he was a contemporary of Cæsar's, and served under him in Spain on this occasion. The events which he witnessed are related much after the manner of a journal, in which entries were made daily, yet without specific dates; from cap. 3 at least, after the arrival of Cæsar in the neighbourhood of Corduba, down to cap. 19, where the xi Kalendas Martias, February 19 Roman, first occurs in terms, as the date of the capture of Ategua, the siege of which had been going on some time before[t].

The same mode of narration continues to be employed from cap. 19—27; in the course of which eight or nine days, beginning xi Kal. Mart. are expressly mentioned, and more are implied. Cap. 27 the following statement occurs: Insequenti tempore quum nostri temere in opere distenti essent equites in oliveto dum lignantur interfecti sunt aliquot. servi transfugerunt; qui nuntiaverunt a. d. iii Nonarum Martii prælium ad Soritiam quod factum est: ex eo tempore metum esse magnum et Attium Varum circum castella præesse.

This battle at Soritia in the neighbourhood of Ucubis was related in its proper place[u]. But the date here specified is not intended of the day of that battle; only of the coming over of the slaves who brought with them this report of its consequences. The narrative proceeds: Eo die (i. e. iii Non. Mart.) Pompeius castra movit, et contra Hispalim in oliveto

[q] Dio, xliii. 32–41. Appian, B. C. ii. 103–106. Livy, cxvi. Strabo, iii. 4.

[r] Plutarch, Cæsar, lvii. Cf. Suetonius, Julius, lvi. 8. Dio, xliii. 42: xlv. 6. Farnesian calendar.

[s] Ovid, Fasti, iii. 713. Maffæan and Farnesian calendar.

[t] Cf. Cap. 6 and 22.

[u] Cap. 24.

constitit *. Cæsar priusquam eodem est profectus *luna hora circiter sexta visa est.* ita castris motis, Ucubim Pompeius præsidium quod reliquit jussit incenderent, et deusto oppido in castra majora se reciperent.

This implies that both Pompey and Cæsar were previously at Ucubis [u]; and that both set out upon these marches on the same day: and as Pompey's march is distinctly dated a. d. iii Nonas Martias, Cæsar's must be so too. The account proceeds from this point of time in the same style and manner of a diary [w] down to the battle of Munda; the date of which here too is assigned Ipsis Liberalibus [x]: though no other date is specified in terms besides, except that on which the head of Cn. Pompeius was brought to Hispalis, Pridie Idus Apriles [y].

It has been necessary to be somewhat particular in the review of this author's details, because of the allusion to the moon, which occurs on the day of the march from Ucubis, iii Nonarum Martii, hora circiter sexta [w]. In Scaliger's work, De Emendatione Temporum [z], the day of this appearance is supposed to have been the iii Kalendas Martias [a], and the *sixth hour* in question is understood of midnight; from which he infers that the moon was rising at midnight, and consequently on the iii Kalendas Martias, February 27 Roman of this time, was 23 or 24 days old. In these conclusions we cannot hesitate to pronounce that this learned man was mistaken; particularly in that of the date of the appearance of the moon: both as to the day of the appearance (the iii Kal. Febr. instead of the iii Non. Mart.) and as to the time of the day, midnight instead of noon.

From the same assumptions he infers also that, though the Julian Correction had been already begun or even established

* These words do not necessarily imply that Pompey was marching to Hispalis, much less that he had got to Hispalis. Hispalis was 56 miles direct N. W. of Ategua; and the battle ultimately took place near Munda, almost the same distance in the opposite direction: i. e. S. E. of Ategua. By Contra Hispalim the author must mean Over against Hispalis, in the direction of Hispalis, looking to Hispalis, or the like. Cæsar was at Hispalis on this occasion; but not until after the battle of Munda. Cf. Capp. 35, 36: 40.

[u] Ibid. loc. cit. [w] Cap. 27 sqq. [x] Ibid. 31. [y] Ibid. 39.
[z] Lib. v. 439. [a] Cap. 19.

at Rome, it had not yet been introduced into the provinces; at least not into Spain. But all the dates in this history of the Bellum Hispanicum, and even this of the xi Kalendas Martias itself, are Julian. The author's date of Munda, Ipsis Liberalibus, must be decisive of that fact; for the Liberalia never meant any thing but March 17 Roman, and in this instance, as the date of Munda also, (the xvi Kalendas Apriles,) March 17 Roman means March 17 Julian also; as is proved by the testimony of the Farnesian calendar. We learn too from Dio[b] that the news of the victory at Munda was received at Rome Pridie Parilia, April 20 Julian of this time; a very possible contingency, if the date of the battle itself was March 17 Julian also, only 34 days before *.

With regard then to the actual time of this appearance of the moon, which Scaliger took for midnight February 27 Roman, B. C. 45; the context, in our judgment, clearly determines it to the iii Nonas Martias, March 5 Roman, and to the sixth hour on that day, or noon. The meaning of the author therefore is that the moon was perceived about noon on this day; and consequently the *new* moon. It is justly to be presumed then that its *first* appearance is hereby intended; and under circumstances more or less extraordinary, to account for its being expressly noticed and mentioned at all.

* In Cicero Ad Atticum, (xii. 37: cf. 40,) mention occurs of a letter from Hirtius, dated Narbone, xiiii Kal. Maias, April 18 Roman, after the battle and the defeat of Pompey. Cf. also xii. 28 previously, which alludes to the equinox; consequently the vernal equinox, B. C. 45, March 25 Roman, 23 Julian. See also xiii. 20, Cæsar's letter of condolence to Cicero for the loss of his daughter Tullia from Hispalis in Spain, (Dio, xliii. 39,) and dated Pridie Kalendas Maias.

In fact it is absurd to suppose that those who were serving under Cæsar at this time in Spain would use any style in their journals, or in their correspondence, but the Julian. And as to Scaliger's inference about the date of the reception of the Correction in the provinces; Censorinus told us it was established over the empire in Cæsar's lifetime and by virtue of his dictatorial power and authority. As he survived the Correction only one year and two or three months, he must very speedily have taken measures to that effect. Of the use of the Julian style in Spain, as early as B. C. 43, we have produced proof (Vol. iii. 457,) from Asinius Pollio's letters to Cicero.

[b] xliii. 42.

To put this to the test we have calculated the new moon of March, B. C. 45, for the meridian of Corduba in Spain; and we have found

The true new moon, March 1 at 8 h. 54 m. 42 s. mean time, at Greenwich.
March 1 at 8 h. 35 m. 24 s. mean time, at Corduba.

Now it must follow from this fact that, if the iii Nonas Martias, the day on which this moon was seen, denoted March 5 Julian as well as March 5 Roman, that moon could not have been less than four days' old at or about noon, when it was thus seen. In this case, we put it to the judgment of our readers, whether its appearing for the *first* time at four days old complete, could have been considered any thing extraordinary? could have appeared something so remarkable as to deserve to be expressly mentioned? But if March 5 Roman in this instance really meant March 3 Julian; this moon could have been only two days and three or four hours old about noon on that day: and that was a period in the synodic month at which the moon is not ordinarily visible; particularly at such a season of the year as February or March, and so early in the day, or so long before sunset: on which account it might be expressly noticed in the journal of this soldier, whosoever he was; especially as the actual time of the observation of the new moon appears to have coincided critically with that of the beginning of Cæsar's march in pursuit of Pompey.

Lunar Character of the Ides of March, B. C. 44.

Again, among the ominous circumstances which are said to have preceded the death of Julius Cæsar, B. C. 44, Obsequens[c], Suetonius[d], Valerius Maximus[e], Velleius Paterculus[f], Plutarch[g], Appian[h], mention an incident which happened in the course of the night before the Ides of March, when Cæsar and Calpurnia his wife were asleep; and from two of these authorities (Obsequens and Plutarch) in particular it appears that there was a moon also at the time, not yet too old to illuminate a room, or to project a shadow in the dark.

We have calculated the new moon of February B. C. 44; and we have found the mean new moon,

[c] De Prodigiis, cxxvii. [d] Vita, lxxxi. 7. 8. [e] i. vii. 2 De Somniis.
[f] ii. 57. [g] Cæsar, lxiii. [h] B. C. ii. 115.

		h.	m.	s.	
For the meridian of Greenwich	February 18	1	48	1	mean time
For the meridian of Rome	February 18	2	37	50	— —

And the true new moon,

		h.	m.	s.	
For the meridian of Greenwich	February 18	11	20	5·5	mean time
For the meridian of Rome	February 18	12	9	54·5	— —

It follows that on March 15 Julian, any time after midnight, this moon would be 24 days, 12 hours and upwards, old; at which time it may very well admit of a question whether it would still be capable of illuminating a room in the dark: and still more whether it could have been rising so near to the point of midnight as the context of the above accounts of what is supposed to have happened at the same time would imply it to have done.

But, if this morning of the Ides of March, March 15 Roman, really denoted that of March 13 Julian, this moon would be only 22 days 12 hours old at midnight on that day; and that was precisely the age of the moon which the ancients intended when they spoke of the second dichotomy: an epoch in the synodic revolution at which it is still in possession of half its light; and therefore it is still capable of projecting a strong and vivid shadow in a dark room. It is that period too of the synodic revolution when, as a general rule, it rises at midnight. This moon being new and in conjunction with the sun, for the meridian of Rome, as nearly as possible at mean noon February 18; by mean motion it would pass that meridian again about 7 30 A. M. March 13, and therefore would be rising about an hour after midnight the same morning.

These two lunar dates, B. C. 45 and 44, are peculiarly interesting and important on the present question; both because they come so early in the actual decursus of the Julian Correction, (one in the first year, the other in the second,) and also because each is capable of being tested and verified by calculation, independently of the Roman calendar of the time being. The coincidences thus established are nice and critical, and *παρὰ μικρόν*; but they are not the less real on that account: and they only concur with every thing else,

on which we have insisted besides, in leading to the same conclusion: That the real date of the first Kalends of January in the Julian Æra must have been two days earlier than it has always been supposed to have been; December 30 B. C. 46, not January 1 B. C. 45.

DISSERTATION XX.

On the Administration of the Julian Correction at Rome, from B. C. 45 *to* A. D. 225.

CHAPTER I.

Section I.—*On the irregularity admitted into the administration of the Calendar from* B. C. 44 *to* B. C. 9. *Testimonies.*

We shall now proceed to the history of the administration of the Julian Correction at Rome, from the year of the Correction as low down as we shall find it necessary for our particular purpose to investigate it.

In the first place, an irregularity was very early admitted into the administration of the calendar; but whether intentionally or unintentionally is a question which will be considered by and by. The fact of the irregularity is substantiated by the following testimonies.

i. Sic annum civilem Cæsar habitis ad lunam dimensionibus constitutum edicto palam posito publicavit. et error huc usque stare potuisset: ni sacerdotes sibi errorem novum ex ipsa emendatione fecissent. nam cum oporteret diem qui ex quadrantibus confit quarto quoque anno confecto antequam quintus inciperet interkalare; illi quarto non peracto sed incipiente interkalabant. hic error sex et triginta annis permansit; quibus annis interkalati sunt dies duodecim, cum debuerint interkalari novem. sed hunc quoque errorem sero deprehensum correxit Augustus; qui annos duodecim sine interkalari die transigi jussit, ut illi tres dies qui per annos

triginta et sex vitio sacerdotalis festinationis excreverant sequentibus annis duodecim nullo die interkalato devorarentur. post hoc unum diem secundum ordinationem Cæsaris quinto quoque incipiente anno interkalari jussit: et omnem hunc ordinem æreæ tabulæ ad æternam custodiam incisione mandavit[i].

ii. Et tunc quoque vitium admissum est per sacerdotes. nam cum præceptum esset anno quarto ut interkalarent unum diem, et oporteret confecto quarto anno id observari antequam quintus auspicaretur; illi incipiente quarto interkalarunt non desinente. sic per annos sex et triginta cum novem dies tantummodo sufficere debuissent duodecim sunt interkalati. quod reprehensum Augustus reformavit; jussitque annos duodecim sine interkalatione decurrere, ut tres illi dies qui ultra novem necessarios temere fuerant interkalati hoc modo possent repensari. ex qua disciplina omnium postea temporum fundata ratio est[k].

iii. Addidere difficultatem et auctores diversis in locis observando, mox etiam in iisdem diversa prodendo. tres autem fuere sectæ, Chaldæa, Ægyptia, Græca. his addidit apud nos quartam Cæsar dictator, annis ad solis cursum redigens singulos, Sosigene perito scientiæ ejus adhibito. et ea ipsa ratio postea comperto errore correcta est; ita ut duodecim annis continuis non interkalaretur, quia cœperat sidera annus morari qui prius antecedebat[l].

iv. Annum a Divo Julio ordinatum sed postea negligentia conturbatum atque confusum rursus ad pristinam rationem redegit: in cujus ordinatione Sextilem mensem e suo cognomine nuncupavit magis quam Septembrem in quo erat natus; quia hoc sibi et primus consulatus et insignes victoriæ obtigissent[m].

To these testimonies we may probably add that of Ammianus Marcellinus also[n], which attributed to Augustus even the original correction of the calendar; perhaps because of the fact that he did some time in his reign actually rectify the Julian calendar, and bring it back to its first principles: which was virtually to repeat the original Correction.

i Macrobius, Saturnalia, i. 14. 270.
k Solinus, i. 45.
l Pliny, H. N. xviii. 57. 186.
m Suetonius, Augustus, xxxi. 2.
n xxvi. 1. Supra, page 30.

SECTION II.—*Remarks on the preceding Testimonies.*

In the first place, it appears from the concurrence of three of the preceding accounts, Macrobius', Solinus', and Pliny's, that, whatsoever was the error which had got into the Julian calendar, it required *twelve* years to correct it. Thus much therefore may be assumed as a certain historical fact, especially on the authority of Pliny; who mentions this fact of the twelve years in succession, allowed to pass without any leap year, as if it was something necessary to rectify an original oversight in the Julian Correction, and not merely an accidental disturbance of it, attributable to an irregular and improper administration.

Secondly, it appears from the same three accounts that the means adopted to correct this error, as soon as it was discovered, was to make twelve years in succession common years. Consequently that from the time of the detection of the error until it had been redressed there must have been twelve years in the Julian calendar without any leap year. And thus much too may be depended upon, as a certain and historical matter of fact; about which there can be no question.

Thirdly, with regard to any thing else which makes part of the same statements, (as for instance the length of time during which the error in question is supposed to have gone on undetected, and the particular manner in which it is represented to have been generated,) it may or may not have been historical and traditionary also; but whether or not it might have been inferred by the authors of these statements simply from the other two facts. For if *twelve* years were suffered to elapse in such a calendar as the Julian without any leap year; that would imply the omission of *three leap years* which otherwise ought to have come in it. The omission of *three leap years* would imply the omission of *three days,* which should otherwise have entered into the calendar. The omission of *some three days* at last would imply an excess of *some three days* previously; and an *excess* of *three* days in a calendar like the Julian could be the effect of nothing but *three leap-years* more than the proper number, and could not be generated in a period of time, supposed to have extended

over *thirty-six* years, in any way but that of making every *third* year a leap year, instead of every fourth.

We see therefore how possible it was from these *two* facts, (one, that an excess of three days had got into the Julian calendar, the other, that this excess of three days was compensated by a contrary defect of three days, and that the mode of the compensation was the omission of three regular leap years in twelve successive years,) to infer all the rest; That this excess had been generated by the introduction into the actual administration of the calendar of three more leap years in a given time than its proper rule allowed of: That this given time must have been *thirty-six* years, in which there were *de facto* twelve leap years when there ought to have been only *nine;* and consequently that the ultimate cause of the error, and the mode in which this excess had been actually generated, must have been a misapprehension and misapplication of the proper law of the cycle of leap year in the Julian calendar: by virtue of which every *third* year had been made a leap year, instead of every *fourth.*

SECTION III.—*On the date of the commencement of the irregularity in question.*

Now thus much being certain, (whether from historical testimony to the fact or from the reason of things and the necessity of the case,) that an irregularity was existing in the administration of the Julian calendar at Rome, which could not have been of less than *thirty-six* years' standing when it was discovered; as to the time of the discovery, it appears from the last of the passages produced *supra* that the irregularity was detected, and the remedy which it required began to be applied to it, in the year in which the month Sextilis received the name of Augustus. The date of this change was the consular year of Censorinus and Gallus, U. C. 746 B. C. 8[o]. If so, the error of administration in question was discovered, and the necessary steps for its correction were taken, B. C. 8. Consequently, if it had been going on 36 years at least previously, it could not have begun *later* than B. C. 44. And yet, unless it began in the lifetime of Julius Cæsar himself, it could not have begun *earlier.* It is morally

[o] Supra, page 22.

impossible however that any such error of administration could have begun *de facto* in the lifetime of the reformer of the calendar; though it might do so as soon after *his* death as the necessity of the case may require. And in fact, from the nature of the error itself and from its cumulative amount at last, though it could not have begun to be admitted earlier than B. C. 44, yet we may safely conclude that it must have begun in that very year itself.

These considerations are of material importance to the further question, What was the true first cause of this irregularity? and whether it was intentionally or unintentionally admitted into the calendar? If we are to believe the testimonies produced above, and especially that of Macrobius, it was solely the effect of *ignorance* on the part of those who had the superintendence of the new calendar as much as of the old: that is of the priests or pontiffs: and it is to be resolved solely into a misapprehension of the proper rule of the Julian cycle of leap year. We shall however take the liberty of considering this point as an *open* question; as one which is not to be prejudged from this testimony of Macrobius, but must be decided upon its own merits, after a strict and impartial inquiry into all the circumstances of the case.

SECTION IV.—*On the cause of the irregularity in question; and whether it was intentional or unintentional?*

The question then, which we assume to be still at issue, being this, Whether the irregularity, so early admitted into the administration of the Julian Correction at Rome, was accidental and the effect of ignorance, or premeditated and the effect of design and contrivance of some kind; the testimony of Dio Cassius to a particular instance of the irregularity itself is of very great importance. This instance is that of B. C. 40 and B. C. 39; the fact which he asserts having affected both these years, but the former directly the latter indirectly: viz. the addition of a day *extra ordinem* to the former with a view to produce a certain effect on the Nundinal character of the latter: Καὶ ἡμέρα ἐμβόλιμος παρὰ τὰ καθεστηκότα ἐνεβλήθη, ἵνα μὴ ἡ νουμηνία τοῦ ἐχομένου ἔτους τὴν ἀγορὰν τὴν διὰ τῶν ἐννέα ἡμερῶν ἀγομένην λάβῃ· ὅπερ ἀπὸ τοῦ

πάνυ ἀρχαίου σφόδρα ἐφυλάσσετο. καὶ δηλονότι ἀνθυφῃρέθη αὖθις ὅπως ὁ χρόνος κατὰ τὰ τῷ Καίσαρι τῷ προτέρῳ δόξαντα συμβῇ P.

We had occasion to refer to this passage before, when we were treating of the Nundinal cycle[Q]; and we made it appear at that time that the Nundinal character of B. C. 39, the seventh Julian year, in the regular course of things must have been *unity*: that is, the Kalends of January U. C. 715 must have fallen on the Nundinal day. If then the fact was as Dio asserts, viz. that a day *extra* was given to the preceding year, no one could have doubted for what purpose it must have been given to it, even if he himself had not told us so; viz. in order to divert the Nundinal Incidence from the first day of the ensuing year *.

* When reporting the fact of an addition of a day to this year *extra ordinem*, Dio evidently speaks as an historian; when observing upon it that *of course* it was taken out again, he expresses merely an opinion of his own. He took it for granted that, if in a calendar like the Julian a day was inserted *extra ordinem* for a particular purpose; when it had served that purpose it must have been taken out again: otherwise it would have interfered permanently with the regular rule and administration of such a calendar. This is very true in itself; but it does not apply to the circumstances of the case at present, for as much as by hypothesis, and in fact according to positive testimony to that effect, the proper rule of the Julian calendar at this very time was not in force. B. C. 40 was one of the years of which it is admitted that the irregular administration held good. It would be contradictory to suppose a day given to this year out of course, and then taken from it again; for that would be the same thing in effect as if it had never been meddled with at all. Besides, how was it possible for a day, given to a particular year for a particular purpose, to be taken out of it again the same year, if that purpose concerned the Kalends of January in the next year? And as to taking it out again the next year, after giving it *extra* to the calendar in this; that would be the same thing in effect as if no day *extra* had been given to the calendar at all: nor consequently any irregularity admitted except *pro tempore*. While therefore we accept the testimony of Dio to the simple matter of fact that B. C. 40 was made a leap-year *extra ordinem*, we are not bound to acquiesce in an inference from it, which is so purely his own, as *this*; That the next year, B. C. 39, or any other year, on that account at least, contained less than 365 days; the usual number of days in the common years of the Julian cycle of leap-year.

P xlviii. 33. Q Vol. ii. 39.

Now the proper date of the irregularity in question having been determined to B.C. 44, and the nature or essence of the irregularity itself, as collected from the concurrent testimony of all our authorities, being assumed to have consisted in making every third year a leap-year instead of every fourth; then on this principle the first actual leap-year in the Julian calendar, after B. C. 45, would be B. C. 43, the third Julian year; the second B. C. 40, the sixth Julian year. We learn from the preceding testimony of Dio that B. C. 40 in particular was such a year. We learn too by what means it was made so; viz. by giving it a day over and above its proper complement, whereby it became a year of 366 days instead of one of 365 days. We have only to take into account the final end for which, as he tells us also, this was done, to come to a right judgment on the further question whether the irregularity itself in this instance was knowingly or not knowingly admitted. If it had for its object to divert the Nundinal Incidence from the Kalends of January of the ensuing year, no one can hesitate to conclude that it must have been knowingly admitted. It is impossible that an irregularity which had such an end in view as that could have been unintentionally admitted.

It is of considerable importance too to the decision of such a question as this, that we should know in what part of the year this extra day was inserted. To judge from the context of Dio, in this particular instance it must have been inserted towards the end of the year; between the end of B. C. 40 and the beginning of B. C. 39: in which case we should be authorized to infer from it not only that a new cycle of the leap-year had now been introduced into the calendar, but also that a new seat had been assigned to the leap-day in the proper year itself; new, that is, relatively to the law of the Julian Correction, and to the seat originally appointed for this purpose in that: though, with regard to the administration of the old lunar calendar, and to that particular case of the same which was most analogous to this in the Julian, (that of the addition of a day *extra ordinem* to the stated length of the year,) the seat always appropriated to *this* purpose, as we have seen, was the end of the year; the end of December, not the end of February.

We shall probably see further proofs of *this* rule in the actual administration of the Julian calendar itself; as we proceed. At present we may put it to the test by simply supposing the Julian Correction intended to have been administered at this very time according to its proper laws; though with so much misapprehension of them as affected the regular cycle of the leap-year, but nothing more. Consequently that every *third* year was made leap-year *extra ordinem;* but that the seat of the leap-day was still the usual one in February, and, in the order of the cycle, at the end of the third or the beginning of the fourth year: and that no regard was paid *ex proposito* to the Nundinal cycle; as indeed in the *regular* administration of the calendar, whether mistaken in its assumptions in other respects or not, none could be. The first leap-year on this principle would be the *fourth* Julian year *ineunte,* B. C. 42; the next the seventh *ineunte,* B. C. 39. Yet the Nundinal character of each of these years would be *unity,* as the following scheme will shew.

Nundinal characters of the first seven Julian years, on the hypothesis that every fourth year ineunte was leap-year, and that the seat of the leap-day was the usual one in February.

B. C.	Sum of days.	Kalendæ Januariæ.	Nundinal Character	Nundinal Epact
46–*45	366	Dec. 30	1	6
45—44	365	Dec. 30	3	5
44—43	365	30	6	5
43—42	366	30	1	6
42–*41	365	Dec. 31	3	5
41—40	365	30	6	5
40—39	366	30	1	6

Now B. C. 39 is the very year of which Dio has told us that its Nundinal character was actually changed; and B. C. 40, the year before it, is that of which he told us also that it was purposely made a leap-year, in order to produce this very effect on B. C. 39. It is evident then that the hypothesis, on which we have been proceeding in the above scheme,

could not have been matter of fact. The administration of the calendar could not have been going on for these first seven years in conformity to its own laws, as it was supposed, in all but the cycle of the leap-year. If so, not only must the actual cycle of the leap-year all this time have been an irregular one, but the seat of the leap-day in this actual cycle must have been an irregular one also *.

SECTION V.—*On the true cause of the irregularity; the prejudice still existing relative to the Nundinal Incidence.*

We may conclude then, from this testimony of Dio's to one actual case of the kind, that the rule of the administration of the calendar at this time was such as our other authorities would lead us to suppose it must have been; viz. that of treating every third year instead of every fourth as the regular leap-year: but we may also collect from it (what does not appear from any of them) that along with the change made in the cycle of the leap-year a change was made also in the seat of the leap-day; whereby it was no longer inserted in the usual place in February, but somewhere towards the end of the year, and most probably at the end of December: between the termination of one year and the beginning of the next. And we may infer from the same testimony likewise (what is still less to be discovered from any of the rest) that the object of this new rule, and the effect of its application in practice, was to divert the Nundinal Incidence from the first day of the year; and that the true first cause of all the irregularity thus *de facto* admitted, the motive into which it is ultimately to be resolved, must have been the old prejudice relating to the Incidence of the Nundinal day on the first day of the year. For all these reasons the irregularity itself must have been any thing but unintentional.

The antiquity of this prejudice has been fully exemplified;

* The meaning of this is that, if the cycle of the leap-day was purposely changed in these seven years, the seat of the leap-day must have been changed too. For these things, in the regular or supposed regular administration of such a calendar as the Julian, were necessarily connected; and one of them could not be deliberately changed without entailing a change in the other.

and when we consider of how long a standing and how inveterate it was at the time of the Julian Correction, it may well be regarded as a remarkable circumstance that, notwithstanding this prejudice, the first Kalendæ Januariæ in the Julian Æra itself were Nundinal. It may perhaps be inferred from this fact that the dictator Cæsar himself was superior to the common superstition of his day, in that respect; and possibly it might be so. Suetonius at least tells us that he permitted no scruple nor consideration of that kind to stand in his way when any thing important was to be done: Ne religione quidem ulla a quoquam incepto absterritus unquam vel retardatus est[r]. But with regard to this particular Incidence of the Nundinal day on the Kalends of January in the first Julian year, as we observed before[s], it was probably matter of necessity rather than of choice; and was allowed to stand good as the least of two evils. A day less or a day more in the year of confusion would have prevented it; but in either of those cases the cardinal points of the natural in terms of the civil year, and in their proper Roman style, must have been thrown one day forward or one day backward: the winter solstice for instance to December 24 or December 22; and the vernal equinox to March 24 or March 22. And though that anomaly too might have been obviated by making the first Julian year a common year instead of a leap-year; yet to have done that must have been to alter the cycle of leap-year in the Julian Correction: and that appears to have been considered something which could not be disturbed; the reason of which is understood, as soon as it is known that it was in reality the cycle of the Sothiacal Period, and purposely taken from that. This first case then of the Nundinal Incidence in the actual Julian Æra was in all probability deliberately allowed to take place. Whether Cæsar himself would have permitted it to occur again, and in the regular course of the administration of the calendar, could have been proved only by the calendar's having been administered for a sufficient length of time after the Correction under his own superintendence and direction; and that proof was never given: for he was cut off in the second year of the Correction itself.

[r] Vita, lix. 1.

[s] Vol. i. 497.

Assuming then the still continuing existence of the old prejudice among the contemporaries of Cæsar; in order to shew what scope there might be for its operation at the outset of the Julian Correction, we shall first of all propose a Table of one Nundinal Period in the Julian calendar; the proper length of which, as we observed elsewhere [t], was 32 years: a Table adapted to *this* hypothesis; viz. that the Julian year, as defined and fixed by Cæsar, B. C. 46–45, went on subject to its own laws in all respects without alteration, for the whole of the first Period of this kind: i. e. to B. C. 14–13.

[t] Vol. ii. 13, 14.

Scheme of the first Nundinal Period of 32 years in the Julian Calendar B. C. $\frac{46}{45}$ — B. C. $\frac{14}{13}$, *on the supposition of its having been regularly administered all that time.*

Period i.	B. C.		Sum of days.	Kalendæ Januariæ.	Nundinal Character	Nundinal Epact
i	46	*45	366	Dec. 30	1	6
ii	45	44	365	Dec. 30	3	5
iii	44	43	365	30	6	5
iv	43	42	365	30	1	5
v	42	*41	366	30	4	6
vi	41	40	365	Dec. 30	6	5
vii	40	39	365	30	1	5
viii	39	38	365	30	4	5
ix	38	*37	366	30	7	6
x	37	36	365	Dec. 30	1	5
xi	36	35	365	30	4	5
xii	35	34	365	30	7	5
xiii	34	*33	366	30	2	6
xiv	33	32	365	Dec. 30	4	5
xv	32	31	365	30	7	5
xvi	31	30	365	30	2	5
xvii	30	*29	366	30	5	6
xviii	29	28	365	Dec. 30	7	5
xix	28	27	365	30	2	5
xx	27	26	365	30	5	5
xxi	26	*25	366	30	8	6
xxii	25	24	365	Dec. 30	2	5
xxiii	24	23	365	30	5	5
xxiv	23	22	365	30	8	5
xxv	22	*21	366	30	3	6
xxvi	21	20	365	Dec. 30	5	5
xxvii	20	19	365	30	8	5
xxviii	19	18	365	30	3	5
xxix	18	*17	366	30	6	6
xxx	17	16	365	Dec. 30	8	5
xxxi	16	15	365	30	3	5
xxxii	15	14	365	30	6	5
Period ii						
i	14	*13	366	Dec. 30	1	6

It appears from this representation that, if the administration of the calendar had proceeded according to our hypothesis, (i. e. subject to its own laws without alteration,) from B. C. 45 to B. C. 13, the Kalends of January must have fallen on the Nundinal day in the *fourth* Julian year, B. C. 43—42, and in the *seventh* B. C. 40—39, and in the *tenth*, B. C. 37—36; (that is, the Nundinal Incidence, the object of so much prejudice and of so many precautions in times past, independently of the first case of all in the first Julian year, must have been matter of fact *thrice* at least in the first nine years of the Correction;) before the arrival of that point of time after which both the cycle of the Nundinal day and the cycle of Kalends might have gone in conjunction to the end of the Period, without giving occasion to the same kind of Incidence again. There would have been sufficient in this state of the case to bring the old and inveterate prejudice into active operation; especially after the death of Cæsar. It is not probable that such coincidences could have been foreseen, and yet, under the influence of an existing prejudice like this, that no measures could have been forecast to prevent them. Under these circumstances consequently there would be every reason *a priori* to expect that the calendar would not be allowed to proceed according to its own laws; that something would be done to anticipate and obviate such coincidences, even though it should interfere with the rules of the calendar itself.

In the next place, and for the final decision of the question whether the irregularity so early admitted into the calendar was admitted through ignorance or on purpose, and, if it was purposely admitted, whether the final end of the admission was or was not the stated and regular diversion of the Nundinal Incidence from the Kalends of January; we will propose *two* schemes of the Irregular Julian Calendar: each from B.C. 45 to B. C. 9, and each supposed to have proceeded in conformity to the same *positive* rule, that of making every *third* year, and not every *fourth*, a leap-year; but one of them as if in misapprehension of the true rule of the Julian cycle of leap-year, the other not as if ignorant of it but as purposely deviating from it: the former consequently intercalating the extra day every third year in the usual place in February,

the latter every third year also, but at the end of December. It will be seen from these different schemes at once, according to which of the two the old and inveterate prejudice could have had nothing to do with the administration of the calendar all the time, and according to which it must have been working at bottom throughout; and in fact must have dictated the actual rule of the administration, whether agreeable to the proper law of the Correction itself or not, throughout.

Scheme of the Irregular Julian Calendar, B. C. 45 *to* B. C. 9.

TABLE I.

Leap-year every third year; and the seat of the leap-day Post Terminalia.

B. C.		Sum of days	Kalendæ.	Nundinal Character	Nundinal Epact
46	*45	366	Dec. 30	I	6
45	44	365	Dec. 30	3	5
44	43	365	30	6	5
43	42	366	30	I	6
42	*41	365	Dec. 31	3	5
41	40	365	30	6	5
40	39	366	30	I	6
39	38	365	Dec. 31	3	5
38	*37	365	31	6	5
37	36	366	30	I	6
36	35	365	Dec. 31	3	5
35	34	365	31	6	5
34	*33	366	31	I	6
33	32	365	Dec. 31	3	5
32	31	365	31	6	5
31	30	366	31	I	6
	*29	365	Jan. I	3	5
29	28	365	Dec. 31	6	5
28	27	366	31	I	6
	26	365	Jan. I	3	5
	*25	365	I	6	5
25	24	366	Dec. 31	I	6
	23	365	Jan. I	3	5
	22	365	I	6	5
	*21	366	I	I	6
	20	365	Jan. I	3	5
	19	365	I	6	5
	18	366	I	I	6
	*17	365	Jan. 2	3	5
	16	365	I	6	5
	15	366	I	I	6
	14	365	Jan. 2	3	5
	*13	365	2	6	5
	12	366	I	I	6
	11	365	Jan. 2	3	5
	10	365	2	6	5
	*9	366	2	I	6
	8	365	Jan. 2	3	5

TABLE II.

Leap-year every third year; and the seat of the leap-day the end of December.

B. C.		Sum of days	Kalendæ.	Nundinal Character	Nundinal Epact
46	*45	366	Dec. 30	I	6
45	44	365	Dec. 30	3	5
44	43	366	30	6	6
43	42	365	Dec. 31	8	5
42	*41	365	31	3	5
41	40	366	30	6	6
40	39	365	Dec. 31	8	5
39	38	365	31	3	5
38	*37	366	31	6	6
37	36	365	Dec. 31	8	5
36	35	365	31	3	5
35	34	366	31	6	6
	*33	365	Jan. I	8	5
33	32	365	Dec. 31	3	5
32	31	366	31	6	6
	30	365	Jan. I	8	5
	*29	365	I	3	5
29	28	366	Dec. 31	6	6
	27	365	Jan. I	8	5
	26	365	I	3	5
	*25	366	I	6	6
	24	365	Jan. I	8	5
	23	365	I	3	5
	22	366	I	6	6
	*21	365	Jan. 2	8	5
	20	365	I	3	5
	19	366	I	6	6
	18	365	Jan. 2	8	5
	*17	365	2	3	5
	16	366	I	6	6
	15	365	Jan. 2	8	5
	14	365	2	3	5
	*13	366	2	6	6
	12	365	Jan. 2	8	5
	11	365	2	3	5
	10	366	2	6	6
	*9	365	Jan. 3	8	5
	8	365	Jan. 2	3	5

In the first of these Tables, while the proper law of the Julian cycle of leap-year is just as much disregarded as in the second, the Nundinal Incidence on the Kalends of January is of regular occurrence every *three* years; so much so that, if this Table represents the actual administration of the Julian Correction at Rome for the interval of time in question, irregular as it was in itself, no one could hesitate to conclude that the irregularity could have been directed to no end, nor intended for any purpose, but that of producing at stated times this very Incidence: from which fact it would follow that, instead of being that form of the Nundinal Incidence which was most to be suspected and most to be guarded against in the new calendar, as it had heretofore been in the old, it must all at once have become that which was most to be desired, most to be affected, and most to be studied.

In the second Table also the law of the Julian cycle of leap year is neglected, and a new law is substituted in its stead; but the effect of the change is seen to be the prevention of the Nundinal Incidence on the Kalends of January: and so regular and constant an effect that there is not a single instance of any such Incidence in this whole period of 36 years; nor, as it is evident, so long as the calendar might have continued to be administered in the same way, ever could have been. Though then such a rule of administration as this was certainly incompatible with the first principles of the Julian Correction, yet if its object was *this* effect and consequence, viz. the stated and regular prevention of the Nundinal Incidence on the Kalends of January, nothing, it is evident, could have been more critically adapted to its purpose; nothing could have been more ingenious or more successful with such an object in view as that.

It is evident also that according to either of these Tables there could have been only twelve leap-years, from B. C. 45 to B. C. 9, exclusive of B. C. 45 itself, which was common to both; and consequently that according to either the number of days, actually introduced into the calendar between B. C. 45 and B. C. 9 over and above the proper amount, could not have exceeded *three:* though it would happen *per accidens* that the Kalends of January in the 37th Julian year, B. C. 9, in the second Table would be found to have already risen to

January 3, but in the first not yet to be higher than January 2. In the 38th year however, B. C. 8, (which was the year of the detection of the irregularity, the year at least in which the remedy began to be applied to it,) they are seen to be falling on January 2 in both; implying thereby a permanent accession to the calendar at that point of time, according to either, of three days but not of more: i. e. from December 30 to January 2. Either of these schemes then would be consistent with the account produced above; both as to the fact of the irregularity itself, and as to the mode in which it had been generated, and as to the length of time for which it had continued, and as to the maximum of excess to which it had attained before it began to be corrected.

We think therefore that there is every reason to rest in *this* conclusion; That the irregularity so early admitted into the administration of the Julian calendar at Rome was intentionally admitted, and that its true first cause was the old prejudice against the Nundinal Incidence on the Kalends of January: and that the final end to which it was truly directed from the first was the stated and regular diversion of this Incidence from the first day of the year in the new solar calendar as much as in the old lunar one. Consequently that, of the two schemes of the irregular administration in question just proposed, (one of which must be the true one though both cannot be so,) that which truly represents the actual decursus of the calendar from B. C. 45 to B. C. 9 must be the second, and not the first*. And this conclusion

* It is far from impossible that the authors of this new rule of administration, when they first resolved on its adoption, had conceived the idea of letting it proceed without interruption until the difference between the new rule of administration and the proper one should amount to eight days, or one Nundinal cycle complete; or, what comes to the same thing, the Kalends of January should have risen from December 30 Julian to January 7. And at that time, it might be proposed, by the omission of eight days all at once, to bring them back again to their first and proper date, December 30; without disturbing the actual course and succession of the Nundinal cycle. It is a curious coincidence, that the Period of the Nundinal ἀποκατάστασις or restitution in the old Lunar calendar (the regular Lunar calendar, that of Numa or that of the Decemvirs) was 96 years, as we have seen (Vol. ii. 13); and that the Period which would be required for the production of the effect of which we are speaking, the in-

is of great importance. For by having thus proved the force of this old and inveterate prejudice in disturbing the regular administration even of the Julian Correction almost from the very first day of its coming into existence, and by having so plainly illustrated the nature of the means employed in this first instance of all, with a view to the production of a certain effect which was just as likely to be proposed and kept in view ever after as at first; we have obviated any objection *a priori* to the *probability*, much more to the *possibility*, of any similar departure from the proper rule of the Correction on any future occasion, and to the use of the same or similar expedients hereafter for the production of the same effect.

SECTION VI.—*On the correction of the irregularity admitted into the Calendar; and the manner in which it was effected.*

That the irregularity thus introduced, and in this first instance, began to be redressed U. C. 746 B. C. 8 has been seen; but whether it had in reality been going on all the time before unknown to any but those who had officially the care of the calendar, or whether, so long as the excess introduced into the calendar by it was not more than one or two days, it might not have been purposely overlooked, we cannot undertake to say *. The superintendence of the calendar

troduction of eight days over and above into the *Julian* calendar at Rome, would be 96 years also, $36 \times 2 + 24$ years. If such was the idea which the administrators of the calendar at this time had actually conceived; nothing could prove more clearly that they very well knew what they were doing, or proposing to do, when they adopted the new rule of administration; the first cause of which the authorities above produced attribute to ignorance and inadvertency.

* In the passage produced from Pliny (p. 80) the discovery of the error admitted into the calendar appears to be attributed to *observation*; and to observation of such a kind as concerned a particular class of dates in the calendar: those of sidereal phenomena, the risings and settings of the fixed stars. His words are remarkable: Et ea ipsa ratio postea comperto errore correcta est; ita ut duodecim annis continuis non interkalaretur: *quia cœperat sidera annus morari qui prius antecedebat.*

At first sight this last observation seems to imply the contrary of its real meaning; viz. that the calendar had been administered in such a manner for a certain length of time previously, that the proper calendar or Julian

belonged to the Pontifical College, and in particular to the Pontifex Maximus. On the death of Cæsar B. C. 44 he was

dates of given sidereal phenomena were found to be anticipating on the real ones; these phenomena according to the calendar were happening earlier than they were actually perceived to be happening. But its true meaning is just the reverse of this; viz. that the calendar had been so administered for some time previously that the actual sidereal dates of such phenomena were anticipating on those of the calendar. The former were happening before the latter, not vice versa. If Pliny expresses this by *the year's* (that is, the civil or calendar year's) *delaying the stars on which it was before anticipating*, it is because he is apt to affect an antithesis of that kind. He could not possibly mean any thing by this description of the effect, howsoever expressed, but that the civil year, by virtue of the peculiar manner in which it had been administered, had come to exceed the sidereal; and consequently that every sidereal date in the calendar had got to a certain extent in advance of the true.

The standard of the mean Julian year is 365 days six hours. That of the mean sidereal is 365 d. 6 h. 9 m. 9·567 sec. (Fasti, Introduction, 242. P. iii. ch. i. sect. xvi.). The annual precession of the latter on the former is consequently 9 m. 9·567 sec. (Ibid. 244. Tab. xxxvii. App. lxxxiii.) On this principle the mean sidereal year should advance 9 m. 9·567 sec. annually on the mean Julian; and in 36 mean Julian years almost 5 h. 30 m. exactly. But if the cycle of the Julian leap-year is assumed at three years instead of four; that is the same thing in effect as assuming the standard of the mean Julian year at 365 d. 8 h. instead of 365 d. 6 h. And in this case the standard of the mean Julian year would exceed that of the mean sidereal by 1 h. 50 m. 50·433 sec.; and in 36 years of such a standard that difference would be found to have accumulated to 2 d. 18 h. and 30 minutes: the sum of mean solar time in 36 Julian years of such a standard as this would exceed that in 36 mean sidereal years by this amount; that is, very nearly three days. Consequently the civil or calendar date of a given sidereal phenomenon at the end of 36 such years would be three days later than the true.

The irregular administration of the Calendar, from B. C. 44 to B. C. 8, would make no difference to the *nominal* date of any one phenomenon of this kind, as originally defined and laid down in it. Take the first date of the kind, which occurs in it; that of the *Ortus Lyræ*. The date assigned it in the correction B. C. 45 was the Nones of January: and its nominal date in the calendar, B. C. 8, would still be the Nones of January. But the Nones of January B. C. 45 denoted January 3; B. C. 8 they denoted *de facto* January 6. If the true sidereal date of the phenomenon B. C. 45 was January 3, its true date B. C. 8 would still be January 3. Consequently *three* days earlier than the calendar date, the Nones of January, January 6. This therefore is what Pliny meant by the year's delaying the *stars*: that is, that their risings or settings still continuing attached to the same dates in the calendar nominally as before, as if they were still the

succeeded in that office, with little or no delay, by Marcus Æmilius Lepidus the triumvir[u]: and Lepidus retained it down to B. C. 12. It is expressly mentioned by the contemporary historians that Augustus would not disturb him in the possession of this dignity, as long as he lived; though he assumed both the office and title of Sovereign Pontiff immediately after his death: and the date of that assumption is well ascertained as the Pridie Nonas Martias (March 6 Roman) in the consular year of Caninius and Valgius U. C. 742 B. C. 12.

Cæsaris innumeris (quem maluit ille mereri)
Accessit titulis Pontificalis honos[w].

Augustus indeed was officially a member of the college even before this, having been elected in the year of Pharsalia[x]; and therefore he could scarcely have been otherwise than cognizant of the rule of administration adopted by Lepidus from B. C. 44 downwards. It is however a curious coincidence that, only four years or one cycle of leap-year

true, they were all found to be rising or setting according to the calendar just three days later than they were actually seen to be.

It seems then that the irregularity admitted into the calendar was allowed to proceed without detection or without correction, until the difference thereby occasioned between the actual sidereal dates of the phenomena of the fixed stars and the calendar dates amounted to *three* days; but that, when it had reached that amount, either it was then first discovered from the fact of the difference itself, or it was then first considered to be time to correct it. On either supposition *three* days was the utmost amount of the difference between the true date and the calendar date of a given sidereal phenomenon, which could either be overlooked or permitted. And on either supposition this state of the case must give us a very high idea of the care and exactness with which these dates must have been adjusted to each other at first. On either supposition we are entitled to argue that more than three days' difference between a real or actual date of this kind and the date assigned it in the calendar never could have existed from the first; and that in a majority of cases of this kind the real dates and the calendar dates must have been altogether the same. And if this class of dates in the calendar (the sidereal, properly so called) were so carefully defined and laid down, and were so true to nature; that ought to be a very strong ground of presumption that the cardinal points of the natural year in terms of the civil must have been just as carefully and critically laid down too.

[u] Dio, xliv. 53: xlv. 17: xlix. 15: liv. 27. lvi. 38. Appian, B. C. ii. 132: v. 126: 131. Cf. Vol. iii. 32.

[w] Ovid, Fasti, iii. 419: Prænestine and Maffæan Calendar.

[x] Vol. iii. 504.

after he became Pontifex Maximus, and consequently responsible for the care of the calendar, the irregularity in question was either first discovered, or first corrected. And yet there must have been *one* irregular leap-year even under the auspices of Augustus, viz. B. C. 10; from which fact the natural inference would seem to be that Augustus himself could not have been ignorant of this new rule, he could only have tolerated it, until then.

Be this as it may, since it is admitted on all hands that the correction applied to the existing disorder consisted in the omission of *three* leap-years in one period of *twelve* years; if B. C. 8 was the first of these twelve years A. D. 4 must have been the last: and between these terms there must have been three years, B. C. 5, B. C. 1, and A. D. 4 itself, which by the regular cycle of the Julian Correction should have been leap-years, but by virtue of the new rule of administration, adopted for these twelve years, were common years. There can be no doubt consequently about the mode of administering the calendar *de facto* from B. C. 9, down to which we have already brought it, to A. D. 4 inclusive; nor about its effect on the calendar itself.

Julian Correction, from B. C. 9–8 *to* A. D. 4–5.

	B. C.	Sum of days	Kalendæ Januariæ.	Nundinal Character	Nundinal Epact
	8	365	Jan. 2	3	5
	7	365	2	6	5
	6	365	2	1	5
	*5	365	2	4	5
	4	365	Jan. 1	7	5
	3	365	1	2	5
	2	365	1	5	5
	*1	365	1	8	5
B. C.	A. D.				
1	1	365	Dec. 31	3	5
A. D.					
1	2	365	31	6	5
2	3	365	31	1	5
3	*4	365	31	4	5
4	5	365	Dec. 30	7	5

By virtue of this new rule of administration the Kalends of January, which B. C. 8 were coinciding with January 2, were brought down first of all to January 1; and that effect was

produced by the omission of the leap-day B. C. 5, so as to be first permanently perceptible B. C. 4. Next, to December 31, by the omission of the leap-day B.C. 1; so as to be permanently perceptible B. C. 1—A. D. 1. Lastly, to December 30, by the omission of the leap-day A. D. 4; an effect first permanently produced A. D. 4–5. And this was their original and proper epoch. The Kalends of January having been again reduced to December 30, the calendar was at liberty to proceed once more according to its own laws; which were consequently now restored. From this time forward (U. C. 758 A. D. 4–5) it was in a condition to go on both as to the cycle of Kalends and as to the Nundinal cycle just as if it had experienced no disturbance from the date of the Correction itself down to this very day. The Julian date of the Kalends U. C. 758 was the same as that of the Kalends U. C. 709; December 30. The Nundinal character of U. C. 758 was 7; and as this year answered to A. D. 4–5, its place in the Nundinal Period in the regular course of the Julian year[y] was Period ii. 18; and in the 18th year of the Period[y] the Nundinal character was seven also.

SECTION VII.—*Confirmation of the above conclusions by the testimony of Inscriptions.* 1. *Inscription of* Nysa *in Caria.*

Ἱ]ερέως Ῥώμης καὶ Αὐτοκράτορος Καίσαρος Σεβαστο[ῦ Ἡρακλ]είδου τοῦ Ἡρακλείδου Μασταυρείτου· στεφανηφόρου Διομ[ήδ]ους τοῦ Ἀθηναγόρου ..... μηνὸς Γορπιαίου ἐννεακαιδεκάτῃ, πρὸ μιᾶς (ε)ἰδῶν Αὐ[γ]ούστω[ν], Κόσσῳ [Κ]ο[ρ]νηλίῳ Λεντύλῳ. καὶ Λευκίῳ Πείσωνι ὑπάτοις· ..... ἐμφ[αν]ίσα[ς Γ]ν[αί]ῳ Λέντλῳ Αὔγουρι τῷ ἀνθυπάτῳ καὶ ἀπο[δ]οὺς [τ]ὴν ὑπογεγραμμένην ἐπιστολή[ν ...

Ἐπὶ Διομήδους τοῦ Ἀθηναγόρου μηνὸς Δαισίου ιζ'. Γ]ναῖος Λέντλος Αὔ[γ]ου[ρ] ἀνθύπατος Νυσαέων ἄρχουσι. κ, τ. λ.[z].

This important inscription (of which we have quoted as much as may serve for our purpose and render our reasoning upon it intelligible) is in a good state of preservation; especially in that part which records the two dates, the Greek and the Roman respectively, and the names of the two consuls. There can be no question then that it belongs to the

[y] See supra, page 90. [z] Corpus Inscriptionum, No. 2943. Tom. ii. 592, 593. Pars. xiii. sect. vi. Nysa in Caria.

reign of Augustus, and that it bears date on Gorpiæus 19 in the Greek style, and on Pridie Idus Augustas in the Roman, in the consular year of Cn. Cornelius Lentulus Cossus L. Calpurnius Piso U. C. 753 Varro A. Ch. N. 1. The city to which it is referred in the Corpus Inscriptionum is Nysa in Caria*; and the people of Nysa are recognized in it. It is observable that as the Roman date of the decree accompanies the Greek so the Roman idiom appears in this inscription in some instances to the prejudice of the Greek; particularly in the mode in which it has ennunciated the names of the two consuls: which is a solecism in Greek, but agreeable to the Roman idiom in such cases.

The Roman date too runs in the form of Pridie Idus *Augustas*, though the inscription itself must have been recorded only seven years after the change of the name from Sextilis to Augustus. But the most remarkable circumstance about it and the most important to our present purpose is the fact that it bears date B. C. 1; i. e. in the very midst of the period from B. C. 9 to A. D. 5, during which the correction applied to the calendar was still going on, and in the second of those leap-years which by virtue of that correction were made common years instead of leap-years.

* This city of Nysa in Caria is said to have been founded by Antiochus (son of Seleucus Nicator) the first of that name among the Seleucidæ, the kings of Syria. Ἀντιόχῳ γὰρ τῷ Σελεύκου τρεῖς γυναῖκες ἐπέστησαν ὄναρ, κτίσαι πόλιν ἐν Καρίᾳ ἑκάστῃ λέγουσα. ὁ δὲ ὑπολαβὼν τὴν μητέρα καὶ τὴν γυναῖκα καὶ τὴν ἀδελφὴν κτίζει τρεῖς πόλεις, ἀπὸ μὲν τῆς ἀδελφῆς Λαοδίκης Λαοδίκειαν, ἀπὸ δὲ τῆς γυναικὸς Νύσης Νύσαν, ἀπὸ δὲ τῆς μητρὸς Ἀντιοχίδος Ἀντιόχειαν[1]. There must however have been a more ancient city on the same site called Πυθόπολις: Νύσαι, πόλεις πολλαί ..... τρίτη ἐν Καρίᾳ[2] — Πυθόπολις[3]. Καρίας πόλις ἡ μετὰ ταῦτα κληθεῖσα Νύσσα. And according to the Etymologicum Magnum it had a still older name, that of Ἄκαρα: Ἄκαρα[4]. πόλις τῆς Ἀσίας ἡ νῦν καλουμένη Νύσσα: founded by Ἀθυμβρος, Κρὴς τῷ γένει ἀπὸ Ῥαδαμάνθυος, παρὰ Κάρσιν οἰκήσας. A river flowed through it called Ἄθυμβρος or Θύμβρος after him. Thymbrus or Thymbræus was one of the oldest titles of Apollo.

Ptolemy mentions Νύσσα in Caria[5]; and Strabo[6]; and Pliny[7]; and Cicero: Deinde Nysæos, quos Nero inprimis habet necessarios[8].

1 Steph. Byz. 137. Ἀντιόχεια.
2 Ibid. 597 Νύσαι.
3 Ibid. 649.
4 Ἄκαρα. Cf. Strabo, xiv. i. ad fin.
5 Geographica, v. 2. § 18.
6 xiv. 1. ad fin.
7 H. N. v. 29. 443. Cf. the Scholia ad Iliad Z, 113. Νυσήϊον.
8 Ad Fam. xiii. 64.

The first thing necessary in order to the right application of the testimony of this monument is to shew that the Greek date compared upon it with the Roman was not taken from the Greek lunar calendar of the time. And that is easy to be proved. By the Macedo-Hellenic calendar, Period v. 1, =B. C. 2—1, the first of Gorpiæus must have borne date on July 23: and as the 15th of the month in that year was exemtile the 19th must have borne date on August 9. On that principle the Roman date also Pridie Idus Augustas must have coincided with August 9; and therefore the Kalends of August with July 29: from which it would follow that the Kalends of January last before must have fallen on December 30 B. C. 2, and that the Kalends of January next after would fall on December 29 B. C. 1.

Now though the first of these things might have been possible *per se*, and, if the calendar had been regularly administered from B. C. 45 to B. C. 2, at this very time must actually have been the case; the latter even in that case could not have been possible: because the Kalends of January having been originally attached to December 30, and the calendar having been regularly administered ever after, they could not fall back to December 29. But under the circumstances of the case neither of these things was possible. They are both precluded by the date of the inscription, which comes in the midst of the period during which it is agreed that the calendar had never yet been regularly administered; and for which the effect of the administration, to which it had been actually subjected until then, had been to raise not to depress the Kalends of January in comparison of their proper epoch. The Greek date therefore, which is compared with the Roman in this instance, could not have been taken from the Greek lunar calendar of the time being.

It follows that it must have been taken from the solar: and though it is not declared in the inscription itself from what form of the solar calendar in particular, there cannot in our opinion be any uncertainty on that point. For let it be assumed (and the assumption cannot be materially in error) that the Roman date of Pridie Idus Augustas compared with the Greek one in this instance is to be understood in the ordinary sense of the Julian August 12; then

the 19th of Gorpiæus will mean August 12; and therefore the first of Gorpiæus will mean July 25. Now July 25 was the regular date of Gorpiæus 1 in that form of the solar and Julian calendar (the Syro-Macedonian calendar) directly derived from the Macedo-Hellenic Type of the more ancient lunar calendar of the Greeks, which is meant by the calendar Κατὰ Μακεδόνας. We may conclude then, with every degree of probability, if not with absolute certainty, at present, that the solar calendar from which this date of Gorpiæus 19 was taken and compared with the Roman one of Pridie Idus Augustas, U. C. 753 B. C. 1, was the Syro-Macedonian form of the Julian calendar, Κατὰ Μακεδόνας.

Now if Gorpiæus 19 in this solar calendar B. C. 1 was falling on Pridie Idus Augustas in the Roman calendar U. C. 753; Gorpiæus 8 must have fallen on the Kalends of August: and Peritius 8 must have fallen on the Kalends of January. And if the Julian date of Gorpiæus 8 was August 1 that of Peritius 8 must have been January 1; which was in fact the regular Julian date of Peritius 8 in the calendar Κατὰ Μακεδόνας. On this principle at the beginning of the 45th year of the Julian Æra, B. C. 1, the Kalends of January and the first of January were absolutely the same. Let us consider then how far this conclusion will be consistent with those two matters of fact which have been ascertained and illustrated; the first, that the Roman calendar had been actually so administered from the second year of the Julian Æra B. C. 44 to the 38th B. C. 8 as to have got three days in excess of its proper Julian epoch in the first year, B. C. 46—45; the second that a correction began to be applied to it B. C. 8, by which this excess was again reduced.

Now in order to this inquiry we must begin with assuming that the Kalendæ Januariæ in the first year of the Julian Æra were attached either to December 30 B. C. 46 or to January 1 B. C. 45. One or other of these assumptions we must make. The truth would require the former; but the common prejudice is in favour of the latter. Let us therefore begin with that.

The Kalends of January then U. C. 709, the first Julian year, having by hypothesis been fixed to January 1 B. C. 45, yet the irregularity in the actual administration of the calen-

dar from B. C. 45 to B. C. 9 being supposed to have been just the same; in the 38th Julian year, B. C. 8, when three days had now been introduced into the calendar more than should have been, the Kalends of January would be found to have risen to January 4. But the correction also of this excess having begun to be applied in this year, and the first of the leap-years omitted for that purpose having been B. C. 5; the Kalends of January in the 42d Julian year B. C. 4 would be found to have dropped to January 3. And the next leap-year omitted for the same purpose being B. C. 1; the Kalends of January in the 46th Julian year A. D. 1 would be found to have dropped to January 2.

Now this is the year which came next to that of the inscription B. C. 1; and since Pridie Idus Augustas in that year by hypothesis corresponded to August 12, the Kalends of August must have corresponded to August 1: and consequently the Kalends of January the next year to January 1. This conclusion would not be consistent with the fact that the very same year the Kalends of January must have been falling on January 2. It follows that either Pridie Idus Augusti in the 45th Julian year could not have coincided with Gorpiæus 19, or the Kalends of January in the first Julian year could not have coincided with January 1. The testimony of the inscription affirms the former. The latter therefore could not have been the case.

Let us then next suppose that the Kalends of January in the first Julian year coincided with December 30 B. C. 46. The irregularity of the administration of the calendar from this year to the 37th B. C. 9 being assumed to have been just the same, and in point of fact exactly such as we have already explained; it will be seen from our calendar that in this 37th year of the Julian Æra B. C. 9 the Kalends of January were falling on January 3; and in the 38th year B. C. 8 on January 2: and that, after the omission of one leap-year (in the 41st year of the Æra B. C. 5), in the 42nd year of the Æra B. C. 4 they were falling on January 1; and in the 45th year B. C. 1 they were still falling on January 1: and if we may assume that this year, Æra Juliana 45 B. C. 1, was administered according to the proper rule and law of the Julian Correction, that is, as a leap-year, then the Kalends of February this year

would fall on February 1, the Kalends of March on March 1; and so on, down to the Kalends of August: which on this principle would be found to be falling on August 1, exactly as it appears from the inscription that they must have done.

But it will no doubt be objected to this conclusion that the 45th Julian year B. C. 1 was not administered according to the proper rule and law of the Julian Correction. It was in fact the second of those three leap-years which were purposely omitted. On this principle there could have been no bissex in the actual month of Februarius U. C. 753; or (what amounts to the same thing) no 29th of February in the 45th Julian year, though there must have been such a day in the proleptic Julian year B. C. 1. Consequently though the Kalends of January this year might fall on January 1, and the Kalends of February on February 1, the Kalends of March must have fallen on February 29; the Kalends of April on March 31: and so on, down to the Kalends of August: which on this principle could not possibly be found falling on any day but July 31.

There can be no doubt that this is only a just and consistent account of what must have been the necessary effect of the omission of the regular leap-day, U. C. 753 B. C. 1. The objection therefore is apparently well-founded; nor have we the least desire to disguise its force. We shall not therefore attempt to evade it by conjecturing that, though the omission of the leap-day U. C. 753 must have taken place at Rome long before August 12, it might possibly not be known of in the provinces even by that time; or that, though it must necessarily have been taken into account in the reckoning of civil time at Rome, it might perhaps have been disregarded in the provinces. We are persuaded that the reckoning of civil time for public purposes in the provinces of the empire was precisely the same as at Rome. There is no necessity in the present instance to suppose that the proconsul Cnæus Lentulus arrived in his province much before Dæsius 17, i. e. than May 10. In that case he must have left Rome some time in March, or even in April; so that the omission of the leap-day must have taken place before his departure; and the calendar which the scribes who attended him would bring with them, and in which all the *acts* or proceedings of his

government were destined to be recorded, could have been nothing different from that which they left behind them at Rome. The proper answer to this objection will both admit its force to its utmost extent, and yet demonstrate that it is only so much the stronger a confirmation of our conclusions.

In each of the forms of the Syro-Macedonian calendar the precise relation of the cycle of the leap-year to the proper Julian cycle of that kind may be a doubtful point; but that in the first of these forms, (to which we have given the name of the calendar Κατὰ Μακεδόνας,) the seat of the intercalary day in the proper year of the cycle was at the *end* of the year is not doubtful. The solar calendar of Nysa in Caria appears to have been one of these; and we may presume that the seat of the leap-day in *this* calendar also was at the end of the last month, Hyperberetæus.

But with regard to its proper cycle of leap-year; it must be admitted that the rule most generally adopted, in the course of time, for the regulation of this cycle in the Macedo-Hellenic calendar was to date it in the middle of the *fourth* year of the proper Julian cycle of leap-year. Yet if we reflect on the number of lunar calendars which previously existed among the Greeks, and on the great variety of circumstances under which one of them after another passed into the Julian, it will not appear improbable that the rule of one in a given respect might not be that of all; or that what came to be the rule in a given respect at last might not have been the rule *at* first, or *from* the first. It is far from improbable therefore that, with respect to the proper cycle of its leap-year, the rule of the calendar of Nysa might be more in conformity to the actual Julian rule than that which appears to have been most generally adopted in calendars of the same kind, and similarly derived; but of much later date: viz. to reckon the cycle from the middle of the first year of the Julian, not from the middle of the fourth; just as the Abyssinian calendar does *at* this very day in contradistinction to the Coptic or old Alexandrine calendar, which it resembles so closely in other respects *.

* The examination of this date as far as we have yet proceeded with it is demonstrative that the solar calendar Κατὰ Μακεδόνας, or one almost

On this principle the Julian date of the first day of every month in the first six months of the calendar would be the

identical with it, was in existence at Nysa in Caria in B. C. 1: and unless we could suppose it was first adopted there only in that very year this fact would prove that it must have been in existence there a longer or a shorter time previously.

We observed in our Fasti Catholici (i. 607.) that the derivation of this form of the solar from the preexisting lunar year would be most practicable when the first of Dius was falling on Sept. 24; and that could have been the case only in two years of the proper Callippic Period of this lunar calendar; the seventh and the twenty-sixth years of the Period, the seventh year of Cycle i and the seventh of Cycle ii. There could be no seventh or twenty-sixth year of this kind at any point of the interval from B. C. 45 to B. C. 1. The last Callippic Period before the Julian Correction began B. C. 78; the first after it B. C. 2.

We conjecture therefore that the adoption of the Julian Calendar at Nysa was to a certain extent irregular; and we incline to the opinion that its actual date was U. C. 723, the 15th Julian year, B. C. 31, the year of the battle of Actium. In the actual administration of the calendar this year was a leap-year *extra ordinem*. Consequently though the Kalends of January that year fell on December 31 B. C. 32, the Kalends of March would properly* fall on March 1 B. C. 31, and the Kalends of October on October 1. The agreement in short of the Julian year of Cæsar and of the Julian year of chronology, in that year, after February 29th Roman would be complete.

Now the battle of Actium was fought on the iv Nonas Septembres, Sept. 2 Roman, this year. In the interval between the battle and the end of the next 30 days Augustus (at that time still Cæsar Octavianus) was at Samos, off the coast of Caria; intending to have wintered there, had he not been recalled to Italy by disturbances at Brundisium. Cf. Suetonius, Aug. xvii. 6, 7: Dio, li. 4.

In the Macedo-Hellenic calendar, this year corresponded to Period iv. 47. Gorpiæus fell on July 25, and Hyperberetæus on August 23. The date of the victory at Actium, (Sept. 2 Roman), in the calendar of Nysa was Hyperberetæus 10 or 11. It is not improbable that out of compliment to Augustus the people of Nysa might adopt the Julian calendar this very year; for which purpose nothing would be necessary except to give a day to Hyperberetæus: by which means Dius 1 would be advanced at once to its proper epoch in this form of the Syro-Macedonian calendar, September 24. And if the Julian cycle of leap-year was adopted at the same time; B. C. 31 would be treated as the third year of that cycle, and B. C. 29 as the first.

The other date which occurs in the inscription, Dæsius 17, as belonging

* We say *properly*, because it is possible that in the actual administration of this leap-year, B. C. 32–31, the leap-day would be introduced at the end of December B. C. 31, not in February the same year.

same in every year of the cycle; but that of the first of every month in the last six in the fourth year of the cycle would be one day earlier than usual: and that would continue to be the case until the end of the year, when the addition of a day to the last month would again advance the epoch of the calendar to its proper Julian date at the beginning of the cycle. B. C. 1 was a year of this kind; which after the 29th of February answered to the first in the Julian cycle of leap-year. We have only to suppose that, according to the rule of the calendar of Nysa, it coincided with the middle of the fourth year of its proper cycle dated from Dius 1 B. C. 2; and we shall explain every thing which requires to be explained in the reduction of the Greek calendar of Nysa to the Julian in the sense of the Roman at this point of time.

B. C. 2–1.				U. C. 753–754.
Calendar of Nysa. 4th year of the cycle of leap-year.				Æra Jul. 44–45. 4th–1st year of the cycle of leap-year.
		Days.	Julian.	
i	Dius	30	Sept. 24	viii Kal. Octobres
ii	Apellæus ..	31	Oct. 24	ix Kal. Novembres
iii	Audynæus ..	31	Nov. 24	viii Kal. Decembres
iv	Peritius ..	30	Dec. 25	viii Kal. Januarias
v	Dystrus ..	29	Jan. 24	ix Kal. Februarias
vi	Xanthicus ..	30	Feb. 22	viii Kal. Martias
vii	Artemisius ..	31	Mar. 23	ix Kal. Apriles
viii	Dæsius ..	30	April 23	viii Kal. Maias
ix	Panemus ..	31	May 23	ix Kal. Junias
x	Löus	31	June 23	viii Kal. Julias
xi	Gorpiæus ..	30	July 24	viii Kal. Augustas
xii	Hyperberetæus	32	Aug. 23	ix Kal. Septembres
i	Dius	30	Sept. 24	vii Kal. Octobres

On this principle Gorpiæus 8 would fall on July 31 the Kalends of August, and Gorpiæus 19 on Pridie Idus Augustas, August 11; and the coincidence, attested by the in-

to the same proconsular year must have corresponded to May 9, not May 10. It is observable that the magistrate designated by the title of Στεφανηφόρος was in office both on this day Dæsius 17 and on Gorpiæus 19, a later day; from which it follows that he could not have come into office between Dæsius 17 and Gorpiæus 19, but he might have done so between Gorpiæus 19 and Dæsius 17: and that would be altogether consistent with the fact that the official year at Nysa was now beginning on the first of Dius September 24.

scription, between the Greek date B. C. 1 and the Roman one U. C. 753, would critically hold good.

ii. *Inscription of* Apamea Ciboti.

There is another inscription in the same collection, of the same antiquity as the preceding, and not inferior to it in its importance to our purpose at present; though unfortunately it is not in the same good state of preservation, but has suffered more from the effects of time.

This inscription appears to have been found at Apamea Ciboti, the modern name of which is Dineir. Its discovery is a recent event. It was first copied by Arundell; and after him afresh by Hamilton: and some parts of it seem to have been transcribed by De Laborde also[a]. From these materials the text, as exhibited in the Corpus Inscriptionum[b], has been put together. And this part of that collection has been published by the new editor, Franzius; to whom the original editor, Boeckh, at the close of the second volume appears to have made over the further superintendence of the work, together with the materials collected for the remainder of it.

It is not clear to us that Franzius has divined the true meaning and purport of this inscription; though that is discoverable even from the fragments of it which still remain. We collect from these intimations that its object must have been to record a decree of the Commune Asiæ, to change the form of their civil year from lunar to solar; and out of compliment to the reigning emperor Augustus to attach its epoch to September 24, the nearest date in the preexisting lunar calendar to that of his birth in the Roman style, ix Kalendas Octobres. For, in the first place, this date of Augustus' birthday and in the Roman style was certainly recognized upon it; and probably more than once. It occurs once at least *in terms* even in these fragments[c]: Ἥτις ἐστὶν πρὸ ἐννέα Καλανδῶν (Ὀκτωβρίων: in which nothing is supplied but Ὀκτωβρίων.

Again, this birthday of Augustus and the beginning of the official year of the Commune Asiæ were nearly coincident;

[a] See the Prologomena to the Inscription.

[b] No 3957. Tom. iii. 48–50: Pars xvii. section iii. Apamea Ciboti.

[c] P. 49. Fragm. c. l. 11.

i. e. fell out about the same time, though not exactly on the same day: not at least at this juncture; Σχεδόν τε συμβα(ί)νει τὸν αὐτὸν ταῖς ἐν Ἀσίᾳ πόλεσιν καιρὸν εἶναι τῆς εἰς τὴν ἀρχὴν εἰσόδου[d]: in which too nothing is supplied but one letter. The propriety of this observation is perceived as soon as it is known that, as the proper date of the birthday of Augustus was the Roman September 23, so the proper epoch of the Macedo-Hellenic Lunar Calendar was the Julian October 1; and that the latter could not fall later than October 7 nor earlier than September 9: and might fall on September 22 or 24, the day before or the day after September 23 itself. The inscription therefore is express to the point that the official year of the Commune Asiæ of this time began very near September 23 Roman; and if that was the beginning of the official year it was no doubt the epoch of the calendar too.

Thirdly, to judge from the context of the inscription and from the tenor of such parts of it as are still entire, (and those appear to have belonged chiefly to the preamble), the thing which was proposed to be done, and the doing or proposed doing of which was recorded upon this monument, was to make this birthday of Augustus an *epoch* of some kind or other. For what else can be inferred from such passages in it as the following? which we shall quote as the editor has arranged and supplied them, though in our opinion they might perhaps have been improved by a different arrangement.

Ἐστὶν ἡ τοῦ θειοτάτου Καίσαρος γενέθλιος (καὶ κοινῇ καὶ ἰδίᾳ ἀγαθῶν πάντων ἀρχη(γὸ)ς, ἣν δικαίως ἂν εἶναι ὑ(πολάβοι τις ἀρχὴν παντὶ τῷ κόσμῳ, εἰ μὴ τῇ φύσει, τῷ γε χρησίμῳ[e]—Διὸ ἄν τις δικαίως ὑπο(λάβοι ταύτην τὴν ἡμέραν πᾶσιν ἀρχὴν τοῦ βίου καὶ τῆς ζωῆς γεγονέν(αι,—καὶ ὅρος τοῦ μεταμέλεσθαι ὅτι γεγέν-ν(ηται, καὶ ἐπεὶ οὐδεμιᾶς ἂν ἀπὸ ἡμέρας εἷς τε τὸ κοινὸν καὶ ε(ἰ)ς τὸ ἴδιον ἕκαστος ὄφελος εὐτυχεστέρας λάβοι ἀφορμὰς ἢ τῆς πᾶσιν γενομένης εὐτυχοῦς· σχεδόν τε συμβα(ί)νει τὸν αὐτὸν κ', τ. λ.[f]

It is clear then that it must have been proposed to make an *epoch* of this day, and both for public and for private purposes; because of its peculiarly auspicious character: and this is explained, if it is understood that this day was to be constituted the epoch of the reckoning of annual time. The

[d] P. 49. Fragm. b. l. 12. [e] Ibid. l. 1–3. [f] Ibid. l. 7–12.

observation subjoined, that this day and the beginning of the year even as it was were much the same, on the same principle is accounted for too; for that was as good as to say that in proposing to fix the beginning of the year to this day they were proposing to make only a very slight change: they were leaving things almost as they had always been before.

But fourthly, even this must imply that the birthday of Augustus and the beginning of the year were not *absolutely* the same. And it appears from other parts of the inscription that between this birthday in the Roman style, ix Kal. Oct. and the day which they were proposing to constitute the new year's day, there was in fact a difference of two days, and of two days exclusive of each. This portion of the monument indeed is very defective: yet the following words can still be distinctly read in it: Μηδὲ ἔσται μία ἡμέρα δύο μέσων. γενομέν[ω]ν.....κατὰ τὴν Ῥωμαϊκὴν· συνήθηαν ε. The context of these words before and after them is lost; nor is it clear that they refer to any part of the inscription which is still extant. Yet they contain, (to our apprehension at least,) an intelligible meaning in themselves; isolated as they are. It appears to us that what they intended to say was That the birthday of Augustus and the new year's day could neither be, nor be reckoned, *one* day, because there was two days' difference between them, Κατὰ τὴν Ῥωμαϊκὴν συνήθειαν. This Ῥωμαϊκὴ συνήθεια is the Roman style; the proper meaning of a given Roman date, like the ix Kal. Octobres, compared with any other, like that of the new year's day in the Macedo-Hellenic calendar, Dius 1. There is no common standard of reference in such cases but the Julian calendar properly so called. Let it be assumed that as referred to this Dius 1 denoted September 24, and the ix Kal. Octobres, September 23 Roman, at this time, denoted September 21. We see at once that the state of the case could not have been represented otherwise than it appears to have been. There would be *two* days' difference (and two days exclusive of either) between Dius 1 and the ix Kal. Octobres.

Now as the Julian epoch of the solar calendar Κατὰ Μακεδόνας, whensoever adopted, was certainly attached to September 24; we might always have concluded from this part of the

ε 49. Fragm. a. l. 2.

inscription that there must have been two days between this date of September 24, the proper Julian epoch of that calendar, and the proper Julian date of the birthday of Augustus at this time: and consequently that this latter must have been either September 21, or September 27; but which of these two, the testimony of this part of the inscription would appear to have left doubtful.

It may however be collected from other parts of it, that such being the state of the case, (viz. that the birthday of Augustus and the epoch of the calendar did not and could not meet in the same day,) the expedient proposed with a view to this case was the following: To reckon the epoch of the calendar neither from the birthday exclusive of the new year's day nor from the new year's day exclusive of the birthday, but from the one to the other, taking in the two intermediate days. Thus much we say may be inferred even from the *lacera verba* of the original; which being arranged and filled up conjecturally by the parts in brackets will stand as follows[h].

[Μί]αν καὶ τὴν αὐτὴν νέαν νουμ[ηνίαν] [νομίζειν καὶ] τὴν τοῦ Καίσαρος γενέθλιον, ἥτις ἐστὶν πρὸ ἐννέα Καλανδῶν [Ὀκτωβρίων.....

Ἐκείνη τε πάντ[ων πρότερον τειμηθῇ, προσλαβομένη [καὶ τὴν νουμηνίαν ἵνα] μᾶλλον πᾶσι γείνηται γνώριμ[ος.

Nothing is wanted here to make the sense complete but Ἔδοξεν or Ἐδικαίωσαν, at the outset. The editor observes on this passage[i], Quid sit *νέα νουμηνία* in tanta lacuna non liquet. But in the classical sense of the term it denoted the *new year's day;* in the Attic calendar the first of Hekatombæon, in the Roman the first of January, in the Macedo-Hellenic the first of Dius. It is clear then that the purport of this part of the inscription must have been exactly such as we have represented; to record the resolution to treat the birthday of Augustus and the new year's day as virtually one and the same, by reckoning the year from both in conjunction.

It is observable however that the inscription itself proceeds: Ἐκείνη τε πάντων πρότερον τιμηθῇ: and this is obviously intended of the birthday, the ix Kal. Octobres mentioned just after, as Franzius reads the text. It implies consequently that the birthday would take precedence of any other day

[h] 49. Fragm. c. 3. [i] 50 ad fin. Tit. c. vs. 7.

appointed to be kept as well as itself. The same thing is intimated in the word Προσλαβομένη; after which we have supplied [καὶ τὴν νουμηνίαν ἵνα] μᾶλλον πᾶσιν γείνηται γνώριμος: wherein Franzius reads γνώριμον, though in the original it is plainly γνωρίμως, a corruption of γνώριμος. The birthday was consequently to *assume* the new year's day; i. e. to take it to itself, over and above, along with the two days between them: and not *vice versa* to be *assumed* by it. If then the new year's day was September 24, the birthday must have been September 21, not September 27. And *this* was to be done, i. e. the birthday was to include the new year's day as an appendage of itself, in order thereby to become better known to *all;* i. e. to the Greeks of Asia: who must of course be familiar with their own new year's day but could not yet have been so with the emperor Augustus' birthday. The best way of making the latter as generally known as the former was of course to associate one with the other.

Lastly all this it appears was a resolution of the Commune Asiæ: Ἔδοξε τοῖς ἐπὶ τῆς Ἀσίας Ἕλλησιν[k]: and the motion was made by a public officer of the Commune, Apollonius son of Menophilus, a native or citizen of Αἰζεανή: Γνώμη τοῦ ἱερ[γ]υροταμίου Ἀπολλωνίου τοῦ Μηνοφίλου Αἰζεανίτου.

With regard to the date of the inscription, it does not at present appear any where upon it. But if, when the decree was passed the new year's day was falling on September 24, then, as we have already observed[l], that could be the case in the Macedo-Hellenic Metonic calendar only in the *seventh* or in the *twenty-sixth* year of its proper period. The seventh year of one of those periods actually coincided with A. D. 5 in the reign of Augustus. And that A. D. 5 might be, and probably was, the year of *this* inscription may be inferred from *another*, which gives us to understand that the Commune Asiæ began to distinguish the birthday of Augustus with public honours *first* some time in the proconsular government of Paullus Fabius Maximus. This inscription is more perfect than the preceding one, though it wants the beginning and some parts of the sequel; for which reason we shall give it entire to a certain extent[m].

[k] 49. Fragm. a. l. 3. [l] Supra, 107, note. [m] Corpus Ins. Græc. 3902. b. Tom. p. 25. sectio iii. Inscriptiones Phrygiæ. Eumenia (Hod. Ishekli, in Cœmeterio.)

.....Πρὸ. ἐννέα Καλανδῶν] τῶν Ὀκτωβρίων γενεθλίου ἡμέρας Καίσαρο[ς· ἐπεὶ] δὲ [ἐ]ψηφισμέ[ν]ον [ἐστὶν εὐχαριστῆσαι τῷ τὰς μ]ε[γ]ίστας εὐρόντι τειμὰς ὑπὲρ Καίσαρος, δεδόσθαι Μαξίμῳ τῷ ἀνθυπάτῳ ὀν[ομαστ]ὲι ἀναγορεύεσθαι ἐν τῷ γυμνικῷ ἀγῶνι τῷ ἐν Περγάμῳ τῶν Ῥωμαίων Σεβαστῶν, ὅτι στεφανοῖ [ἡ] Ἀσία Παῦλον Φάβιον Μάξιμον εὐσεβέστατα παρευρόντα τὰς εἰς Καίσαρα τειμὰς .....ἀναγραφῆναι δὲ τὸ δελτογράφημα τοῦ ἀνθυπάτου καὶ τὸ ψήφισμα τῆς Ἀσίας ἐν στήλλῃ λευκολίθῳ.....καὶ τεθῆναι ἐν τῷ τῆς Ῥώμης καὶ τοῦ Σεβαστοῦ τεμένει. προνοῆσαι δὲ καὶ τοὺς καθ' ἔτος [ἱερεῖς] ἑκάστους, ὅπως ἐν ταῖς ἀφηγουμέναις τῶν διοικήσεων πόλεσιν ἐν στηλλαῖς λευκολίθοις ἐνχαρα[χ]θῇ τό τε δελτογράφημα τὸ Μαξίμου καὶ τὸ τῆς Ἀσίας ψήφισμα, κ', τ. λ.

It must be inferred from this representation that the Commune Asiæ had proposed a reward to any one who should recommend to them the most appropriate mode of honouring the emperor Augustus; and that it had been suggested to them by the proconsul Fabius Maximus to keep his birthday: which suggestion had proved so acceptable that the promised reward had been assigned to him. Now this Fabius Maximus was consul U. C. 743 B. C. 11; and by one of the standing rules of Augustus' government [n] he could not have been proconsul of Asia in less than five years afterwards at least: so that the date of this decree could not have been earlier than B. C. 6 or B. C. 5; and it is evident that it might have been much later. It recognizes an Ἀγὼν, as in existence at this time and celebrated at Pergamus, which took its name from the Roman Augustalia (the Ῥωμαῖα Σεβαστά); and those had been instituted at Rome only in B. C. 11 [o]. It recognizes also a temple of Rome and a temple of Augustus as in being likewise; and there was one of each at Pergamus [p], both no doubt older than B. C. 6.

Though therefore we cannot undertake to pronounce with confidence in what year the inscription at Apamea Ciboti was actually recorded, yet if the birthday of Augustus had not begun to be publicly kept any where in Asia Proconsularis before B. C. 6 or 5; it cannot be considered improbable that the resolution recorded on that monument to keep

[n] See our Dissertations on the Principles, &c. i. 505.

[o] Vol. ii. 147. xiii.

[p] Dissertations on the Principles, &c. i. 497 note. Marmor Ancyranum: Tacitus, Ann. iv. 37: Dio, lix. 28.

it in such a manner as to connect it with the new year's day, and with the official year, might not be adopted before A. D. 5: to which year it is determined by the necessity of the case itself, if Dius 1 at that time was actually falling on September 24.

At this time the Roman Kalends had certainly been brought back to their original relation to the Julian; viz. two days behind them all round the calendar. At this time it could not fail to be the case that the Kalends of September were falling on August 30; and therefore the ix Kalendas Octobres on September 21: *two* days exclusive in anticipation of September 24. It seems to be clearly attested by the inscription that such was actually the case, at the time when it was recorded. This must do much to confirm our conclusion respecting its date, A. D. 5; and still more in proof of our original position, that the first Kalends of January in the Julian Correction bore date Dec. 30 B. C. 46 *.

* This inscription is competent to establish the point that a given Roman date was two days behind the same nominal Julian date (September 23 for instance Roman was two days behind September 23 Julian) at the time when it was recorded; whether that was A. D. 5 or any later year before the end of the reign of Augustus: and whether the resolution commemorated by it actually took effect at the time or not. That such a decree was passed, and that it was committed to stone, there cannot be any question; but whether it was ever executed, (i. e. whether the change in the beginning of the year, which seems to have been enjoined by it, was actually carried into operation and at *this* time too,) may very well be doubted.

The idea of treating the New-year's-day as one day made up of four, or as if every one of four different days was as much the New-year's-day as another, was an anomaly not easily reduced to practice. And had it been so, since the first and most important of these four days was after all September 21, its effect in the end must have been to transfer the head of the calendar from September 24 to September 21: and no such epoch of the Syro-Macedonian calendar as September 21 has yet been discovered any where, though September 23 is found as well as September 24. In our opinion, the purport of this decree was never carried into effect. It is capable of proof that the calendar of Smyrna was still lunar as late as A. D. 54; and first became solar in A. D. 157: and that the calendar of Pergamus continued to be lunar even for a still longer time, and was converted into a solar one first probably in A. D. 175 or 176. These were two of the principal cities of the Commune Asiæ. If their calendar in particular was lunar so long after A. D. 5, this decree it is manifest could not have taken effect; *permanent* effect at least.

CHAPTER II.

SECTION I.—*On the administration of the Calendar from* A. D. 5 *forwards; and on the method proposed to be observed in treating of it.*

The irregularity which had been admitted into the administration of the Julian Correction from B. C. 44 to B. C. 9 having thus been rectified, and the calendar having thereby been brought back exactly to the state in which it had been left by the author of the Correction himself; this year, U. C. 758 A. D. 5, the 50th year of the Julian Æra, in which that effect first took place, may be considered as virtually the epoch of the Correction itself. The question which we have to consider from this time forward is that of the actual administration of the Julian calendar at Rome, from this new epoch of December 30 A. D. 4; not from the old and original one of December 30 B. C. 46.

It is a question of *fact* throughout; and therefore one which must be determined as we proceed continually by testimony, not by arguments *a priori*, or reasons of probability of any kind: though such arguments may still be appealed to; and, subject to the condition that they shall be corroborated by testimony at last and shewn to be consistent with matter of fact, may be allowed their weight. The investigation on which we are about to enter is long and laborious; and without those data which the divine Providence has put into our hands would probably have been impossible: but with the help of those data, and with the Divine blessing upon the use of them, we know from experience that it may be both safely and successfully conducted, and requires only time and patience.

The method which we propose to follow in the conduct of the investigation is to ascertain if possible from testimony of one kind or other the actual state of the relation of the Roman Kalends to the Julian at different points of time, one

after another, later than A. D. 4: and if it is found as the result of these inquiries that the Kalends of January at a given point of time later than A. D. 4 were still at par with December 30; we shall be at liberty to infer from that fact either that the administration of the calendar must have gone on regularly meanwhile, or that, if there was ever *de facto* an irregularity in it, it must have been only temporary. If it should appear on the contrary that the Kalends of January at different points of time later than A. D. 4 were sometimes in advance of December 30, sometimes behind it; it will follow that the calendar could not have been regularly administered meanwhile. We shall meet with proofs as we proceed that the Kalends of January were sometimes at par with December 30, and sometimes in advance upon it, sometimes in defect of it. The inference from which fact must be spontaneous and inevitable; viz. that the actual administration of the calendar from one of these points of time to another could not have gone on uniformly in obedience to one and the same law, and that the proper law of the Julian calendar: but must have done so with more or less of deviation from it, according to the circumstances of the case. What we ourselves consequently shall have to do will be to shew if possible by what kind of actual administration each of these anomalies and inconsistencies may be accounted for; and the calendar may be brought into *that* state at a particular time in *which* it appears from testimony to have been. In other words our proper task will be that of arranging and digesting the details of the administration from one of these points of time to another, so as to be consistent at a given time with every fact on record; and at different times even with the most contrary ones: so as to be confirmed in short by every known fact of this kind, and to be contradicted by none.

SECTION II.—*On the relation of the Roman to the Julian Kalends* A. D. 15.

From any thing which is known of the personal character of the emperor Augustus, there is no reason to suppose that he was superior to the common prejudices of his time. On the contrary, if it is true as Suetonius tells us[q] that he

[q] Vita, xcii. 6.

would never set out on a journey upon the day after a Nundinal day nor undertake any serious business on the Nones of the month, for no better reason than because he disliked the name of such days (Propter δυσφημίαν nominis) and thought it ominous; we may fairly perhaps conclude that he was as likely to be influenced by the old and inveterate superstition respecting the Nundinal Incidence on the New year's day as any of his contemporaries. Yet since it is recorded of him that, after the correction of the irregularity which has been explained, he caused the proper rule of the Julian cycle of leap year to be engraved on a tablet of brass, and set up, as a perpetual guide and exemplar of the administration of the calendar for the future; we may presume that the proper rule of the Correction would be strictly observed for the rest of *his* time in particular.

In fact, if the moving cause of any irregularity of this kind both at first and ever after is ultimately to be resolved into this one consideration of the Nundinal Incidence on the Kalends of January; our calendar will shew that from A. D. 5 to the end of the reign of Augustus, even with a regular administration of the rule of the Correction, no fresh case of that kind would be in danger of occurring; and therefore that there could be no inducement, on that account at least, to interfere with it during the rest of his reign.

Julian Calendar at Rome, A. D. 4–5 *to* A. D. 13–14.

A. D.	Sum of Days.	Kalendæ Januariæ.	Nundinal Character	Nundinal Epact
4–5	365	December 30	7	5
5–6	365	.. 30	2	5
6–7	365	.. 30	5	5
7–*8	366	.. 30	8	6
8–9	365	December 30	2	5
9–10	365	.. 30	5	5
10–11	365	.. 30	8	5
11–*12	366	.. 30	3	6
12–13	365	December 30	5	5
13–14	365	.. 30	8	5

With regard then to the actual state of the relation of the Roman to the Julian Kalends at the death of Augustus, U. C. 767 A. D. 14; there were two days in the Alexandrine calendar of the Egyptians[r] which bore peculiar names: one in the first month called Thoth, the other in the second called Phaophi. The proper name of this day in the former was Θωὺθ Σεβαστὴ, and that of the same in the latter was Ἰουλία Σεβαστή; and, though what day of the month was denoted by the former is not known, the day intended by the latter is known: viz. the first of the month; the first of Phaophi in question[s].

Now it seems to be agreed that the reason of this peculiar denomination in the first of these instances, that of Θωὺθ Σεβαστὴ, in all probability was the fact that this day in particular in the Alexandrine calendar represented the birthday of Augustus; i. e. it was that particular day in the Alexandrine calendar, which coincided with the Roman date of Augustus' birthday, ix Kalendas Octobres, September 23 Roman. The Julian limits of the Alexandrine Thoth in the first year of the cycle (the year after the leap-year) were August 30 and September 29; in all the rest they were August 29 and September 28. The birthday of Augustus, even according to its proper Roman style, any time after the date of the Julian Correction, must necessarily fall between these limits. We do not know when this name of Θωὺθ Σεβαστὴ was given to a certain day in the Alexandrine calendar; only that it must have been earlier, or at least not later, than A. D. 1: in which year the inscription which attests it was dated. Neither do we know the day of the month Thoth to which it was given; only that if it was really that which represented the true Julian date of Augustus' birthday in the Alexandrine calendar, and yet was later than the time when the title of Augustus was first conferred on the emperor himself, it must have been that day in the Alexandrine calendar which corresponded to September 23 Roman some time in the interval between B. C. 27 and A. D. 1: and September 23 Roman during the interval in question must have corresponded either to September 23 Julian or to September 24: the

[r] See the account of this calendar in our Fasti, iv. 461—502. Diss. xix.

[s] Cf. our Fasti, iv. 477—479, note.

former of which in the Alexandrine calendar in the first year of the cycle of its leap-year would answer to Thoth 25, and in the other three years to Thoth 26; the latter in the first year of the cycle to Thoth 26, and in the other three to Thoth 27.

If then this title of Θωὺθ Σεβαστὴ was given to one of these days in the month Thoth because it represented the Roman date of the birthday of Augustus in the Alexandrine calendar; it may fairly be assumed that the similar title of Ἰουλία Σεβαστὴ was given to the first of Phaophi in the same calendar, because it was the Alexandrine date of the birthday of Livia the wife of Augustus. Ἰουλία Σεβαστὴ in Greek is Julia Augusta in Latin; and each of these was the title of the empress Livia, conferred upon her by the will of Augustus himself. We infer then that by the person so designated no one could ever have been intended but the empress Livia. We infer also that, if Θωὺθ Σεβαστὴ was meant of the birthday of the emperor Augustus, Ἰουλία Σεβαστὴ was meant of the birthday of the empress Livia; the Alexandrine date of which on this principle was the first of Phaophi.

Now the limits of the Alexandrine Phaophi in the first year of its proper cycle of leap-year were September 29 and October 29; in each of the other three were September 28 and October 28. The Julian date of the first of the Alexandrine Phaophi could never be anything but September 29 or September 28; September 29 in the first year of the cycle of leap-year, September 28 in each of the other three. On this principle the Julian date of the birthday of the empress Livia must have been either Sept. 29 or Sept. 28; i. e. in any case she must have been born in the month of September, the *Julian* month of September. Yet we have seen reason to conclude[t] that she was born in the month of October, the Roman month of October. These conclusions at first sight appear to be inconsistent; and yet in reality they may not be so, if any day in the Roman October, and in any year of the Alexandrine cycle of leap-year, was capable of coinciding with the Julian September 29 or 28, and through that with the first of Phaophi.

[t] Supra, page 24, note. Cf. Fasti, iv. 477, note.

Now, if the stated date of the Kalends of January in the Julian Correction was December 30; that of the Kalends of October in the same must have been September 29. We are at liberty to assume, until the contrary can be demonstrated, that the empress Livia, born some time in the Roman October, was born on the Kalends of October; consequently that the Julian date of her birthday in the Julian Correction was Sept. 29. In the first year therefore of the Alexandrine cycle of leap-year the Roman date of her birth, the Kalends of October, would fall on the first of Phaophi. In the first year therefore of the Alexandrine cycle of leap-year the name of Julia Augusta might be given, out of compliment to her birthday, even to the first day of Phaophi. And there is every reason to conclude that, if *this* title was ever given to *that* day for such a reason, it must have been in the first year of the proper Alexandrine cycle of leap-year. The emperor Augustus died on the 19th of August Roman U. C. 767 A. D. 14. Divine honours were decreed to his memory, and the title of Julia Augusta, conferred upon Livia by his will, was confirmed by the senate September 17 Roman the same year. It was no doubt the fact of what had thus been done at Rome, which gave occasion to the same thing's being done in Egypt; and if that could not yet have been known of in Egypt by the first of Phaophi A. D. 14, only 13 days after it had been done at Rome, it is manifest that the precedent thus set at Rome A. D. 14 could not have been imitated in Egypt until the next year A. D. 15. And that would be the first year of the Alexandrine cycle of leap-year. In *that* year the Kalends of the Roman October, (the birthday of Livia,) and the first of Phaophi would both meet in the Julian September 29; and no time nor opportunity could have been more proper or convenient for giving it the title of Julia Augusta. The same coincidences indeed would again hold good A. D. 19, in the first year of the next cycle. No one however can consider it probable that such a compliment as this, (specially intended to do honour to the wife of one emperor just deceased, and to the mother of another just come to the throne, in imitation too of what had been done at Rome so soon after both those events,) would be delayed four years.

SECTION III.—*On the relation of the Roman to the Julian Kalends* A. D. 19. *Appearance of the island of* Thia; *and Lunar Eclipse of July* 5, A. D. 19.

In Aurelius Victor's life of Claudius we meet with the following statement: Hujus anno sexto cum quatuordecim regnavit octingentesimus urbis mire celebratus: visusque apud Ægyptios Phœnix.....atque in Ægeo mari repente insula ingens emersit, nocte qua defectus lunæ acciderat.

With respect to this last fact, a similar statement occurs in Dio also, speaking of the same year, U. C. 800 Claudius iv L. Vitellius iii A. D. 47, affirming the appearance of a new island in that year, though not any lunar eclipse which preceded it: Ἀνεφάνη δὲ καὶ νησίδιόν τι ἐν τῷ ἔτει τούτῳ παρὰ τῇ Θήρᾳ τῇ νήσῳ, οὐκ ὂν πρότερον [u].

The sixth of Claudius strictly speaking was comprehended between January 24 A. D. 46 and January 24 A. D. 47; and the latter only could answer to U. C. 800 Ex Kal. Jan. or Ex Palilibus. There was one lunar eclipse A. D. 46 January 11 8 A. M. at Paris; another July 6, 7. 30 P. M. Paris; and a third December 31, 9.30 P. M. Paris: the last of which might possibly have been supposed in after-times to have borne date both in the 6th of Claudius and in U. C. 800 also Ex Kal. Januariis; especially with reference to any event which happened after midnight in the evening of December 31, B. C. 46, and consequently on January 1 B. C. 47.

Notwithstanding however the possibility of explaining the statement of Victor in question on *this* principle there is reason to suspect the truth of the assertion itself; that of the appearance of an island at all, or of *this* particular island at least, in the reign of Claudius. There is a circumstantial account in Pliny of every phenomenon of that kind which was known to have happened from the earliest times down to his own[w]: Claræ jam pridem insulæ, Delos et Rhodos, memoriæ produntur enatæ. postea minores; ultra Melon Anaphe: inter Lemnum et Hellespontum Nea: inter Lebedum et Teon Halone: inter Cycladas Olympiadis cxxxv anno quarto Thera et Therasia: inter easdem post annos cxxx Hiera eademque Automate: et ab duobus stadiis post annos cx in nostro ævo

[u] lx. 29. [w] H. N. ii. 89.

M. Junio Silano L. Balbo Coss. ad viii Idus Julias Thia. ante nos et juxta Italiam inter Æolias insulas, item juxta Cretam, emersit e mari MMD passuum una cum calidis fontibus: altera Olympiadis clxiii anno tertio[x] in Tusco sinu flagrans hæc violento cum flatu—Thera cum primum emersit Calliste dicta. ex ea avulsa postea Therasia: atque inter duas enata mox Automate eademque Hiera: et in nostro ævo Thia juxta eamdem Hieram natav. Besides these he mentions no more. We must suppose then that up to the time when he was writing he knew of no more which had appeared in the same way.

Now, though the numbers which define the date of the first of these appearances, that of Thera and Therasia, Ol. cxxxv. 4, or the interval between that and subsequent phenomena of the same kind, cxxx years in one instance, cx years in another, may or may not be corrupt: there is no reason why the names of the Roman consuls, specified of the third of these instances, M. Junius Silanus and L. Balbus, may not be supposed to be the genuine reading of his text. If so; these two were the consuls of U. C. 772 A. D. 19, the fifth year of Tiberius Cæsar.

This year then, thus authenticated by the names of its consuls, must have been U. C. 772 A. D. 19. In that year, as our calendar shews, the Kalends of January still fell on December 30: and though, as our calendar also shews, this year was *de facto* made a leap-year *extra ordinem*, yet as the seat of the leap-day was at the end of the year that would make no difference to the relation of the Roman to the Julian Kalends, before the next year. The Kalends of July this year consequently would still fall on June 29: and therefore the viii Idus Julias, July 8 Roman, on July 6. And this consequently must have been the Julian date of the appearance of the island of Thia, U. C. 772; if its Roman date was the viii Idus Julias that year.

Now the testimony of Victor, quoted supra, strictly understood implies that this appearance happened in the night time, and in some night on which there had been an eclipse of the moon; *before* this appearance too: *Nocte* qua defectus lunæ

[x] Cf. Eusebius, Chron. Arm. Lat. ii. 245: Ad Ann. 1890, Ol. 163. 3. Thesaurus Temp. Ol. 163. 3.

[y] H. N. iv. 23; p. 144.

accideret. If then the date of the appearance was July 6 A. D. 19 it must have been July 6 in the *morning;* and therefore the date of any lunar eclipse the same night, but before it, must have been July 5 in the evening. Now there is a lunar eclipse in Pingré, July 5 at 4 P. M. for the meridian of Paris A. D. 19; and we have thought it of sufficient importance to calculate the same full moon from our own Tables, for the meridian of Thia; assuming that, according to D'Anville, this meridian was 23° east of Paris, 1 h. 41 m. 22 sec. east of Greenwich. And we find that for the meridian in question the full moon of July A. D. 19 must have fallen out July 5 at 17 h. 55 m. 58 sec. mean time from midnight; that is as nearly as possible July 5 at 6 P. M. mean time. The latitude of Thia according to D'Anville also must be assumed at 36° 40′ N; and for that latitude the length of the longest day would be about 14 hours and 30 minutes: and at this season of the year, July 5 A. D. 19, it may be supposed that the sun would set little more than an hour after the middle of this eclipse. This eclipse consequently would extend into the beginning of the night of July 5, strictly reckoned from sunset: and that would be sufficient to cause it to be recorded as an eclipse which had happened in the night.

This coincidence then must do much to authorize the inference that the true date of the appearance of the island of Thia was A. D. 19 in the reign of Tiberius; not A. D. 46 or 47 in that of Claudius: and we should possess in the date of this appearance, (supplied by Pliny in its Roman style at the time,) July 8 Roman, and in the Julian date of this eclipse which preceded it, July 5, a strong confirmation of the details of our calendar for U. C. 772, A. D. 18—19; and not the less so, because it rested ultimately on the concurrence of facts each of which was attested by a distinct authority: the fact of the Roman date of the appearance by that of Pliny, the fact of the eclipse the same night, and before it, by that of Aurelius Victor.

It may however be objected that Victor assigns both the eclipse and the appearance of the island to the reign of Claudius: and to this objection we may reply That in ascribing a phenomenon of that kind to the reign of Claudius Victor might not have been mistaken. An island appeared

in *his* reign as well as in *that* of Tiberius; and in the same quarter of the Mediterranean sea in his reign, as before in that of Tiberius. This fact as we have seen is attested generally by Dio; and not only by Dio, but by Eusebius[z], by Orosius[a], by Cassiodorius[b]; and by others*: differing merely in the precise year in which they date it. But the most particular and the most authentic account of it is that of Seneca[c]: Majorum nostrorum memoria, ut Posidonius tradit, quum insula in Ægeo mari surgeret spumabat ante diu mare et fumus ex alto ferebatur†. idem nostra memoria Valerio

* The same phenomenon appears to be attested by Philostratus[1]; though with his usual disregard of chronology he dates it in the reign of Nero not in that of Claudius. He supposes Apollonius to have set out on this journey to Rome from Sparta; after the Olympia of A. D. 61 and ἀρχομένου ἦρος: consequently the spring of A. D. 62. By the way he takes him to Crete[2]; and while he is still there, this island appears at Thera[1]: and thus the appearance is fixed to the spring or summer quarter of A. D. 62.

He arrived at Rome after the murder of Agrippina[3]; and consequently should have been brought thither A. D. 59: particularly as an allusion occurs to an eclipse also[4], which must have been intended of that which actually happened soon after her death. And yet on the third day[4] after this eclipse too Nero's table is supposed to have been struck by lightning; and that happened in reality A. D. 65[5]. According to Philostratus also, Nero's gymnasium intended for the Neronea was not finished when Apollonius came to Rome[6]; and that could not be true A. D. 62: for the Neronea were first celebrated A. D. 60, and again A. D. 61; which last year was ever after reckoned their proper epoch[7]. The reason of which appears to have been that Nero's gymnasium itself was dedicated this year, A. D. 61. Tac. Ann. xiv. 47.

† This phenomenon is described in similar terms by Strabo (i. cap. iii); and we learn from his account that the island which thus appeared for the first time was situated between Thera and Therasia; and consequently must have been that which Pliny called Hiera and Automate. And Pausanias too alludes to the time when *this* island had not yet appeared: viii. xxxiii. ad fin.

1 Vita Apollonii, iv. xi. 193 D.
2 iv. x. 189 A—xi. 192 B.
3 xii. 197 C D: xii. 194 B—196 B: xiii. 198 B.
4 iv. xiv. 203 B C.
5 Tacitus, Ann. xiv. 22. 20: cf. xv. 22: (cf. xiv. 48) U. C. 815. xv. 23. Eusebius, Chron. Arm. Lat. ii. 273: Ad Ann. 2079. Dio, lxi. 16. Jerome, Thesaurus Temp. Ol. 210. 2.
6 iv. xiv. 202 B: cf. v. vi. 225 A.
7 Cf. Suetonius, Nero, xii. 8. xxi. 1. Vita Lucani, 1. Vitellius, iv. 2. Tacitus, Ann. xiv. 20. 47. Dio, lxi. 19-21.

[z] Chron. Arm. Lat. ii. 271. ad Ann. 2061. Thesaurus Temp. ad Ann. 2060. Ol. 205. 4.
[a] vii. 6.
[b] Chron. ad Ann. U. C. 798 A. D. 45. Vinicius et Cornelius (Corvinus).
[c] Opp. v. 106. Nat. Quæst. ii. 36. 3: 4.

Asiatico consule iterum accidit: i. e. an island appeared then too and near Thera also; which in a second allusion to it he distinguishes from Therasia[d]: Therasiam, et hanc nostræ ætatis insulam, spectantibus nobis in Ægeo mari enatam. quis dubitat quin in lucem spiritus vexerit? and this determines the island in question to have been the same of which both Dio and Victor must be supposed to have spoken; especially the former, who described it as situated near Thera.

Now the consular year of Valerius Asiaticus, in which Seneca dates this phenomenon, must have been U. C. 799 A. D. 46. That is the only year in which he appears in the Fasti as consul ordinarius; and this very year, by the contrivance of Messallina and Vitellius, as Tacitus relates[e], he was put to death. This year too, U. C. 799 A. D. 46, was properly the *sixth* of Claudius; in which Victor dated the appearance of his island. We must therefore conclude that an island did actually rise up in the Ægean this year; in the same locality too as that in the reign of Tiberius: and that would be one circumstance of agreement between these two phenomena, though distinct in point of time. Another would be that, as a Marcus Junius Silanus was consul U. C. 772 when the island then appeared, so a Marcus Junius Silanus (the colleague of Valerius Asiaticus) was consul U. C. 799 when this island also appeared. A third would be that there was an eclipse of the moon July 5 U. C. 772, and there was an eclipse of the moon July 6 U. C. 799; and these eclipses were very easy to be confounded: and as the former was really connected with the appearance of the island in U. C. 772, so might the latter be supposed to have been with the appearance of that in U. C. 799. It might contribute to the same confusion of two things, distinct indeed in themselves but so like each other in their circumstances, that both happened in the reign of Tiberius (one in that of Tiberius Nero, the other in that of Tiberius Claudius); and both very nearly in the same year of his reign, the former in the fifth year of Tiberius Nero, the latter in the sixth of Tiberius Claudius. These coincidences appear to be sufficient to account for the confusion, between the time and the circumstances of the first of these phenomena and those of the second, made by

[d] Ibid. vi. 21. 2. [e] Ann. xi. 1–3.

so late a writer as Aurelius Victor; though, after all, the mistake into which he would seem to have fallen would concern only one circumstance of the second phenomenon of the same kind: its following after an eclipse of the moon, as the first had done. Had such a coincidence actually characterized it, neither Dio nor Seneca would have failed to mention it; for they attached too much importance to all such coincidences to have passed it over unnoticed. Besides, according to Seneca, the phenomenon to which he alludes happened in the *day-time, spectantibus nobis;* Victor's, according to his own account, in the *night-time.*

To conclude then with some observations on the numbers in Pliny, in the passage produced supra.

The appearance of Thera or Therasia, as his text stands at present, is dated Olymp. cxxxv. 4; i. e. B. C. 237—236. It is observable however that Justin[f] dates the same event in the consular year of Flamininus; which would properly be U. C. 596 B. C. 199—198*. But Flamininus was a name easy to be confounded with Flaminius: and Flaminius' first consular year would be U. C. 531 B. C. 223. And that *this* must have been the year intended by Justin may be inferred from what he also states of the same occasion[g], the earthquake at Rhodes the same day; which earthquake, as it is implied, threw down the celebrated Colossus there. The earthquake which overthrew the Rhodian Colossus is dated by Eusebius[h] B. C. 224—223; and that it really happened about that time (B. C. 223—222) may be inferred from Polybius[i]. We may conclude then that Pliny's true date for the appearance of

* Plutarch, De Pythiæ Oraculis xi, appears to corroborate this date of Justin's by coupling the appearance of an island between Thera and Therasia, with the close of the second Punic war, and the defeat of Philip in Macedonia. It appears however from Eusebius, Chron. Arm. Lat. ii. 237 ad ann. Abrah. 2815, Ol. 144. 4 and Jerome, Thes. Temp. Ol. 145. 3. B. C. 198–197, that this was the island of Hiera, not Therasia. Both Eusebius' and Jerome's entry is Juxta Theram apparuit insula quæ vocatur Hiera.

[f] xxx. iv. 1. Cf. § 8.

[g] xxx. iv. 3.

[h] Chron. Arm. Lat. ii. 235 ad Ann. 1792 Ol. 139. 1. Cf. Thesaurus Temp. Ol. 139. 2. Pliny, H. N. xxxiv. 18. 234. Osorius, iv. 13 dates it distinctly B.C. 223 U.C. 531. Cf. Obsequens, xxx. v. 88–90.

Thera or Therasia was not Olympiad cxxxv. 4 B. C. 237—236, but Olympiad cxxxix. 4 B. C. 221—220.

And this correction being made in the first of his numbers, the rest will be found consistent with it even as they stand. The appearance of Hiera*, cxxx years after, will be B. C. 91; and that of the island of Thia, cx years after this, will be critically A. D. 19, the consular year of Silanus and Balbus. This island of *Thia* was not known to Strabo; at least he has not mentioned it: and that omission may be significant; for Strabo was writing his Geographica[k] as late as A. D. 19 U. C. 772; and yet he had done with them before the middle of that year, by which time no such island had yet appeared. On the contrary, it is mentioned by Pomponius Mela[l], and as situated between Ios and Thera; and he was writing between the Kalends of July A. D. 43 and the Kalends of January A. D. 44[m]. The Thia of Pliny then had already appeared and was already known by that name (Θεία νῆσος, analogous to Hiera, Ἱερὰ νῆσος before) by A. D. 43. It could not therefore have first appeared B. C. 46. Consequently neither could the Silanus in whose consular year it first appeared have been the consul of A. D. 46, the colleague of Valerius Asiaticus; as some of the learned have supposed.

SECTION IV.—*Relation of the Roman to the Julian Kalends A. D. 41. Date of the death of Caligula.*

The date of the death of the emperor Caius Cæsar or Caligula was the ix Kalendas Februarias, January 24 Roman, U. C. 794 A. D. 41. It is recorded of this day, on credible testimony, that it coincided with the same in the Macedonian Lunar Calendar of the time being on which Philip the son of Amyntas also came to his end by a violent and unexpected

* Pliny calls this island of Hiera also by the name of Automate. The island called Hiera, according to Plutarch, Eusebius, and Jerome, supra, appeared B. C. 198–197, and that is an appearance not noticed by Pliny. We may reconcile him with the others, by supposing Automate and Hiera distinct islands; and that Pliny's island which appeared B. C. 91 is meant of Automate, theirs', which appeared B. C. 198–197, of Hiera.

[k] Cf. our Dissertations, iii. 366, 367 : i. 536.

[l] ii. 7. 60.

[m] Fasti, iv. 490.

death; like this of Caligula. We hope to have a future opportunity of inquiring more at large into the particulars of that date, in illustration of its proper calendar. At present it is sufficient to observe that the traditionary lunar date of the death of Philip, thus circumstanced and thus authenticated, was Peritius 2. It follows that the lunar Peritius 2 A. D. 41. was coinciding with the ix Kalendas Februarias U. C. 794. Now the lunar Peritius 2, at this period of the Macedonian calendar, coincided *de facto* with January 24 A. D. 41. If so, the ix Kal. Februarias Jan. 24 Roman U. C. 794 must have done the same; and therefore January 1 Roman with January 1 Julian, the same year. That is, U. C. 794 A. D. 41 the Roman Kalends were coinciding with the Julian, and the Julian year of Cæsar with the Julian year of chronology. It is a necessary inference from that fact that the Kalends of January, in the course of the administration of the calendar from A. D. 19, not to say A. D. 15 or A. D. 5, down to A. D. 41 had risen from December 30 to January 1; and in what manner that must have been brought about we shall endeavour to explain by and by.

SECTION V.—*Relation of the Roman to the Julian Kalends* A. D. 44 *and* A. D. 45. i. *Solar Eclipse* A. D. 45; *and birthday of the emperor Claudius.*

Καὶ ἐπειδὴ ὁ ἥλιος ἐν τοῖς γενεθλίοις αὐτοῦ ἐκλείψειν ἔμελλεν, ἐφοβήθη τε μή τις ἐκ τούτου ταραχὴ γένηται, (ἐπεὶ ἄλλα ἄττα τέρατα συνεβεβήκει,) καὶ προέγραψεν οὐ μόνον ὅτι τε ἐκλείψει καὶ ὁπότε καὶ ἐφ' ὅσον ἀλλὰ καὶ τὰς αἰτίας δι' ἃς ἀναγκαίως γενήσεσθαι τοῦτο ἔμελλεν[n].

The emperor Claudius was born (at Lugdunum in Gaul) on the Kalends of August, in the consular year of Julus or Julius Antonius and Fabius Africanus, U. C. 744 B. C. 10[o]. The Roman date of his birth was consequently the Kalends of August. It is so recorded in the Capranic and the Antiatine calendars. In the common style it would pass ever after for August 1; as it does in Dio[p]: though in strictness August 1 at Rome, and no doubt in the provinces also, U. C. 744 corresponded to August 3 B. C. 10.

[n] Dio, lx. 26. [o] Suetonius, Vita, ii. 1. Dio, lx. 5: cf. 10. 34. [p] lx. 5.

The year of which Dio was speaking in this passage was the consular one of M. Vinicius ii and T. Statilius Taurus Corvinus [q] U. C. 798 A. D. 45. If then the sun was to be eclipsed on the birthday of Claudius that year, there was to be a solar eclipse on the Kalends of August U. C. 798, August 1 Roman, A. D. 45. It appears from Pingrè that there *was* a solar eclipse A. D. 45, on August 1; at 10 A. M. for the meridian of Paris according to his calculation, at 10.42. A. M. for that of Rome, according to the same: the true time of which was probably somewhat nearer to the point of noon. But the fact of the phenomenon and on *this* day is all that we are concerned with; and Pingrè's calculation is abundantly competent to prove that there might be, and probably was, a visible solar eclipse for the meridian of Rome, August 1 A. D. 45. No doubt then this must have been the eclipse which was expected to happen on the birthday of Claudius; the Kalends of August U. C. 798. If so, the Kalends of August U. C. 798 and the first of August A. D. 45 must have coincided; and therefore we may presume the Kalends of January also and the first of January. And as this latter coincidence has been already ascertained to have been holding good A. D. 41; it may not be surprising that it should appear to be still holding good only four years after. Yet whether the calendar had been regularly administered even from A. D. 41 to A. D. 45 is a question which must not be prejudged on the strength of that coincidence merely. There are other facts upon record which require to be taken into account, before we can come to a conclusion about it.

ii. *Nundinal Character of* U. C. 797 A.D. 44.

Τότε μὲν δὴ ταῦτα ἐπράχθη· καὶ τὴν ἀγορὰν τὴν διὰ τῶν ἐννέα ἡμερῶν ἀγομένην εἰς ἑτέραν ἡμέραν ἱερῶν τινων ἕνεκα μετέθεσαν. καὶ τοῦτο μὲν καὶ ἀλλότε πολλάκις ἐγένετο [r].

This statement is the last which occurs in this book of Dio's with reference to A. D. 44. The next chapter begins with the consular year of Vinicius and Corvinus, U. C. 798 A.D. 45; and the ingress of U. C. 797 A. D. 44 was noticed in like manner in its proper order of time before [s]. If then this

[q] lx. 25. [r] lx. 24. [s] Ibid. 23.

statement comes in historically where it does; the matter of fact which it affirms would seem to have been one of the events of U. C. 797 A. D. 44. Let us therefore first of all consider this matter of fact *per se;* and if we see reason to doubt of the truth of the fact itself we may still more reasonably conclude that the time to which it is referred may have been mistaken also, if not by Dio, yet by his epitomizer Xiphilinus.

Now the fact, so asserted, itself is this, That a change was made in the Nundinal cycle this year, and that the regular Nundinal day was transferred to a different day; and, lest that should appear to be something extraordinary in the present instance, the assertion of the fact of what was now done is accompanied by a remark of Dio's or Xiphilinus' That the same thing had often been done before. But what would be implied in the fact itself, if true? What but an alteration in the length of the Nundinal cycle, either enlarging it by one day, or shortening it by one day? Such a change, instead of having often taken place before, had never been attempted, never been known or heard of, (and very possibly had never been even thought of,) since the Foundation of Rome. It is contradicted by the entire course and succession of the cycle from first to last. It would not be more conceivable of the Nundinal cycle among the Romans than of the Hebdomadal among the Jews. If this translation of the Nundinal day from one feria of the Nundinal cycle to another, to serve a particular purpose, had been considered allowable, the regular cycle of the calendar would never have been discarded for the sake of the Nundinal Incidence; nor would it have been necessary to resort to so many shifts and contrivances, with no object in view perpetually but *this one*, of diverting the Nundinal Incidence in the regular course of the cycle from one day in the calendar, the Kalends of January.

But Dio or Xiphilinus, it appears, added the explanatory observation that the same thing which was done on this occasion had often been done before when there was the same occasion for it; and that may assist us to the discovery of what was actually done on this occasion, and why it was done: and consequently of what Dio really meant to record at this period in the regular course of his history.

For *this* one purpose of diverting the Nundinal Incidence, a change had often been made in the regular administration even of the Julian calendar; a day had often been given to the calendar extra ordinem: and Dio himself has left one instance at least of that fact on record[t]. We apprehend that this is the true explanation of what was done in the present instance also. The Nundinal Incidence was in danger of falling on the Kalends of January; and something was now done to prevent it which under similar circumstances had often been done before: and this something, in the administration of a calendar like the Julian, and in conformity to the precedents thus established, could have been nothing but giving it a day *extra ordinem*, or making some particular year a leap-year, which otherwise would have been common.

The question is therefore whether this particular form of the Nundinal Incidence was in danger of happening on the Kalends of January U. C. 798 A. D. 45, as the context of Dio would imply, or on the Kalends of January U. C. 797 A. D. 44? To decide this question we will again draw out the scheme of the Nundinal Period adapted to the Julian Correction, as supposed to have been regularly administered from B. C. 45 to A. D. 45. This Period as we have explained is one of 32 years. The first bearing date January 1 Roman B. C. 45, the second would bear date January 1 Roman B. C. 13; and the third January 1 Roman A. D. 20: and A. D. 44 would be the 25th year of that Period.

[t] Supra, page 83: B. C. 40.

Type of the Nundinal Period of 32 years in the Julian Calendar.

Period i. B. C. 45—13.

Epoch January 7 B. C. 45 *the Feria Prima.*

Year.	B. C.	Sum of days.	Nundinal.	Nundinal Character	Nundinal Epact
*i	*45	366	January	7	6
ii	44	365	January	1	5
iii	43	365	—	4	5
iv	42	365	—	7	5
*v	*41	366	—	2	6
vi	40	365	January	4	5
vii	39	365	—	7	5
viii	38	365	—	2	5
*ix	*37	366	—	5	6
x	36	365	January	7	5
xi	35	365	—	2	5
xii	34	365	—	5	5
*xiii	*33	366	—	8	6
xiv	32	365	January	2	5
xv	31	365	—	5	5
xvi	30	365	—	8	5
*xvii	*29	366	—	3	6
xviii	28	365	January	5	5
xix	27	365	—	8	5
xx	26	365	—	3	5
*xxi	*25	366	—	6	6
xxii	24	365	January	8	5
xxiii	23	365	—	3	5
xxiv	22	365	—	6	5
*xxv	*21	366	—	1	6
xxvi	20	365	January	3	5
xxvii	19	365	—	6	5
xxviii	18	365	—	1	5
*xxix	*17	366	—	4	6
xxx	16	365	January	6	5
xxxi	15	365	—	1	5
xxxii	14	365	—	4	5
Period ii. *i	*13	366	January	7	6

Cf. the Table p. 90 also.

We assume nothing in this Table except that the second Nundinal day, in the actual administration of the Julian Correction at Rome, fell on January 7 B.C. 45; and that the administration went on regularly in conformity to the laws of the Julian calendar, for three of these periods in sequence. And though it may be said that this assumption is

contrary to the matter of fact; it makes no difference to our argument, which is merely to shew that in the regular administration of the Nundinal cycle along with the Correction the character of U. C. 797 A. D. 44, the 25th year of the third Period, must have been unity; but not that of U. C. 798 A. D. 45. We do not here propose the scheme of the actual administration from B. C. 45 to A. D. 44. But that may be seen in our General Calendar; and it will appear from it that the character of January A. D. 44 must have been unity, had it not been purposely rendered different.

The true explanation of this statement of Dio's then is that A. D. 44 (U. C. 797) the Nundinal day was in danger of falling on the Kalends of January; and to prevent that the same expedient was resorted to on this occasion which had often been adopted for a similar purpose before: viz. the addition of a day to the length of U. C. 796 A. D. 43, which made it a year of 366 days, (that is a leap-year), *extra ordinem*, instead of a common one of 365 days; and thereby diverted the Nundinal Incidence from the Kalendæ Januariæ U. C. 797 to the Pridie Kalendas Januarias U. C. 796, and changed the character of U. C. 797 A. D. 44 from *unity* to *eight* *.

Now the seat of this *extra* day being the end of December Roman, U. C. 796 B. C. 43, it would necessarily affect the Kalends of January U. C. 797, and raise them to January 2 A. D. 44; and the Kalends of February also: which it would

* As the seat of the intercalary day in such extraordinary cases as these was at the end of the year; that circumstance serves to explain the supposition of Dio's, though mistaken in respect of the year, (A. D. 44 instead of A. D. 43,) that what was done on this occasion was done at the end of the year. It would actually be done at the end of A. D. 43. He added that it was done Ἱερῶν τινων ἕνεκα: and that too might be explained by the final end of what was done; viz. that the Nundinal Incidence might thereby be diverted from the Kalends of January. The Nundinal Incidence was considered ominous. The Kalends of January at this time were kept as an holiday, and probably as one of the greatest in the year. See Ovid, Fasti i. 71–88. Tac. Ann. iv. 70. Dio, xlvii. 13. Suetonius, Aug. lvii. 1. Herodian, i. 49: cf. ii. 8. Lucian, iii. 168. Pseudologista, 7. Historiæ Aug. SS. Alexander Severus, 37: Tacitus, 9. Constantian Calendar. Tertullian, iv. 166, 167, De Idololatria, 14. Julian, Opera, 339 C. Misopogon. Libanius, Oratio ix. In Kal. Jan. Lydus, De Mensibus, iv. 3. 52 l. 22–4. 56 l. 7.

raise in like manner to February 2. But it would not necessarily affect the Kalends of March. It is perfectly allowable to suppose that if U. C. 796 A. D. 43 was made a leap-year *extra ordinem*, to answer a particular purpose, U. C. 797 A.D. 44, which should otherwise have been a leap-year, would be made a common year. In this case the Roman and the Julian Kalends would coincide on the first of March U. C. 797 A. D. 44; and all through the rest of *that* year U. C. 797, and all through the next U. C. 798 A. D. 45, if nothing was purposely done to prevent it, the proportion of one to the other would be that of absolute equality. Consequently the Kalends of August U. C. 798 and August 1 A. D. 45 would be the same day; as in fact it is proved by one and the same eclipse of the sun on each of these days in that year, that they were.

The facts then which we have thus been considering are demonstrative that both U. C. 794 A. D. 41, and U. C. 798 A. D. 45, the relation of the Roman Kalends to the Julian was that of equality; and January 1 Roman and January 1 Julian meant the same thing. At the death of Augustus U. C. 767 A. D. 14 the Kalends of January were still attached to their original epoch, December 30; and U. C. 772 A. D. 19 we have also seen reason to conclude that they had not yet begun to differ from it. Let us then consider by what means between U. C. 767 or U. C. 772, A. D. 14 or A. D. 19, and U. C. 798 A. D. 45 they might have come to rise from December 30 to January 1.

It is a property of the regular decursus of such a nocti-diurnal cycle as the Nundinal in such an annual one as the Julian that, if the Nundinal character of the first or the second year of the cycle of leap-year in the latter has become 4 in the former, (i. e. the Nundinal day has fallen on the *fourth* of January,) the Nundinal cycle will go on in the Julian year for a certain number of years, without any danger of falling on the first of January. If this coincidence has happened in the *first* year of the cycle of leap-year, it will go on for 18 years without incurring this risk; and if it has happened in the second, year it will go on for 22 years, without incurring it. Any one may satisfy himself of the truth of

what we say by referring to either of the schemes of the Nundinal Period proposed supra. Let us then first of all continue the scheme of the calendar regularly from A. D. 14 to A. D. 19.

A. D.	Days.	Kalendæ Jan.	Nundinal Char.	Nundinal Epact
13–14	365	December 30	8	5
14–15	365	.. 30	3	5
15–*16	366	.. 30	6	6
16–17	365	December 30	8	5
17–18	365	.. 30	3	5
18–19	365	.. 30	6	5

It thus appears that the Nundinal cycle might have gone on regularly and in the regular administration of the calendar, from A. D. 14 to A. D. 19; and yet the Nundinal day would not fall on the Kalends of January: but that if both still went on regularly past A.D. 19 (the fourth year in the cycle of leap-year) not only would the Kalends of January U. C. 773 A. D. 20 become Nundinal, but the Kalends of January U. C. 776 A. D. 23 also.

A. D.	Days.	Kalendæ Jan.	Nundinal Char.	Nundinal Epact
18–19	365	December 30	6	5
19–*20	366	.. 30	1	6
20–21	365	December 30	3	5
21–22	365	.. 30	6	5
22–23	365	.. 30	1	5

Now this double Incidence of the Nundinal day on the

Kalends of January in so short a time, if foreseen, was capable of being prevented; and what is more that peculiar modification of the character of the *second* year of the cycle of leap-year whereby it should become 4 was capable of being brought about, by actually administering the calendar for these four years, A. D. 19–22, as follows.

A. D.	Days.	Kalendæ Jan.	Nundinal Char.	Nundinal Epact
18—19	366	December 30	6	6
19—20	366	December 31	8	6
20—21	366	December 31	2	6
21—22	365	January 1	4	5

After this the Kalends of January might continue attached to January 1, and yet no further interference with the proper rule of administration would be necessary (for the sake of the Nundinal Incidence at least) for 22 years without interruption; as the following scheme will shew.

Julian Calendar at Rome U. C. 775 *to* U. C. 798 A. D. 22 *to* A. D. 45.

A. D.	Days.	Kalendæ Januariæ.	Nundinal Char.	Nundinal Epact
22	365	January 1	4	5
23	365	.. 1	7	5
*24	366	.. 1	2	6
25	365	January 1	4	5
26	365	.. 1	7	5
27	365	.. 1	2	5
*28	366	.. 1	5	6
29	365	January 1	7	5
30	365	.. 1	2	5
31	365	.. 1	5	5
*32	366	.. 1	8	6
33	365	January 1	2	5
34	365	.. 1	5	5
35	365	.. 1	8	5
*36	366	.. 1	3	6
37	365	January 1	5	5
38	365	.. 1	8	5
39	365	.. 1	3	5
*40	366	.. 1	6	6
41	365	January 1	8	5
42	365	.. 1	3	5
43	366	.. 1	6	6
*44	365	January 2	8	5
45	365	January 1	3	5

It is clear that the calendar, having been brought into this state in A. D. 22, might go on according to its proper laws, and yet that no year would call for any attention on the score of the Nundinal Incidence before A. D. 43, 22 years later. But at this time, i. e. A. D. 43, it must have been foreseen that unless prevented by some special and extra precaution the Kalends of January A. D. 44 (U. C. 797) would fall on the Nundinal day. It is not a little remarkable that, as we have already discovered from the testimony of Dio rightly understood, *this* was actually the year in which the regular administration of the calendar was again interfered with, for the express purpose, as he represented it, of changing the cycle of the Nundinal day, but in reality (as it must

now appear) for that of diverting the Nundinal Incidence from the Kalends of January in the ensuing year.

It may be objected indeed to the preceding scheme that it admits of three leap-years in sequence, A. D. 19, A. D. 20, and A. D. 21; and that is true. One of them however, A. D. 20, was the regular leap-year of the Correction, at that period of its decursus. As to the other two; *two* days are absolutely necessary *extra ordinem*, in order to reconcile the actual administration of the calendar with the testimony of facts: according to which the Roman Kalends between A. D. 15 and A. D. 41 are seen to have risen from December 30 to January 1. This effect could have been produced only by making two common years leap-years somewhere or other in the course of this interval. It makes no difference whether it was actually produced by having two leap-years *extra ordinem* in sequence, or at distinct points of time. Meanwhile it was a very important discovery, and a great point gained, (and abundantly competent to produce, and in the opinion of the directors of the calendar to justify, even an irregularity to this extent,) that the calendar could thereby be brought into such a state that it might go on in conformity to its proper laws for so long an interval of time as 22 years. Tiberius indeed was Pontifex Maximus from A. D. 14 to the end of his reign A. D. 37; but that is no reason why the actual administration of the calendar might not have been left to the Pontifical College, especially from the time when he began to execute his purpose of withdrawing himself from Rome: and that too coincided almost critically with the date of this first instance of irregularity, *de facto* admitted since the death of Augustus*.

* Tiberius retired first from Rome U. C. 774 A. D. 21 [1]; but was recalled to the city the next year by the illness of Julia, his mother [2]. He was still there U. C. 776 A. D. 23 [3]: U. C. 778 A. D. 25 [4]: U. C. 779 A. D. 26 [5]. But in *this* year he retired for good [6], first to Campania, and the next year to Capreæ (U. C. 780 A. D. 27 [7]). Tacitus [6] dates this *eleven* years before his death. Plutarch, De Exsilio, ix: Τιβέριος δὲ Καῖσαρ ἐν Καπρέαις ἑπτὰ ἔτη διητήθη μέχρι τῆς τελευτῆς. In fact he was in Campania U. C. 781

1 Tac. Ann. iii. 31: cf. 47. Sueton. Tib. xxxix. 1, 2: xli. 1: li. 4: lxxii. 1, 2. Dio, lvii. 20, 21.

2 Tac. Ann. iii. 64: 52.

3 Ibid. iv. 1: cf. 4.

4 Ibid. iv. 34.

5 Ibid. 46.

6 Ibid. 57, 58.

7 Ibid. 62: 67.

SECTION VI.—*Relation of the Roman to the Julian Kalends A. D. 48–52. i. Sixth of Mecheir, and the Ides of January.*

The trade wind which blows in the Red sea and the Indian ocean six months in the year from the S. W. and six months from the N. E. in Pliny the elder's time appears to have passed by the name of Hippalus; though in both respects it was considered to be much the same as Favonius in Latin or Ζέφυρος in Greek. And this name appears to have been given it after the proper name of a pilot or mariner, accustomed to navigate those seas; who was the first to notice the convenience of that wind for shortening the voyage from Egypt to India: and the first to take advantage of it, and to set the example to others of doing the same.

We had occasion to inquire into the date of the first voyage thus made across the Indian ocean by means of this wind Hippalus[u]; and we saw good reason to conclude that it must have been made in some one of the four years from A. D. 48 to A. D. 51: in each of which the first day of the equable Thoth was falling on the Julian August 11.

The voyage thus annually made from Egypt to India and back by means of this wind had a stated day, generally speaking, for its setting out, and a stated day for its return; and according to the accounts followed by Pliny[u] this latter day in the Egyptian calendar was Mecheir 6: but, as that would not have been intelligible to his Roman readers with-

A. D. 28[8], and U. C. 785 A. D. 32[9]. He was near Rome U. C. 786 A. D. 33[10]: and again U. C. 788 A. D. 35[11]. Dio implies that he was so too A. D. 34[12]. Lastly, at his death he was at Misenum[13], U. C. 790 A. D. 37. From A. D. 26 however to A. D. 33 would be seven years; and that was probably Plutarch's meaning, viz. that Tiberius was a voluntary exile seven years, from A. D. 26 to A. D. 33.

Capreæ was brought from the Neapolitans by Augustus[14], U. C. 725 B. C. 29; and thus became the private property of the imperial family.

8 Tac. Ann. iv. 74: 68.
9 Ibid. vi. 1.
10 Ibid. 15: cf. 20. Dio, lviii. 21: 24.
11 Tac. Ann. vi. 39: 31. Dio, lviii. 25.
12 Dio, lviii. 24.
13 Tac. Ann. vi. 50: 45. Dio, lviii. 28: cf. 27.
14 Dio, lii. 43: cf. 1: 41. Suetonius, Aug. xcii. 5.

[u] Fasti Catholici, iv. 478–491.

out some explanation, he added its Roman date, Quod fit *intra Idus* Januarias nostras.

Now the Ides of January were the 13th of January Roman. A. D. 48–51 the first of the equable Thoth was falling on August 11; and therefore the first of the equable Mecheir on January 8: consequently the sixth on January 13. And that would appear to imply that January 13 Roman and January 13 Julian must have been the same; each being the same apparently with the equable Mecheir 6. But it is very observable that Pliny does not say after all that Mecheir 6 fell *on* the Ides of January. What he does say is that it fell *within* the Ides of January (Quod fit *intra Idus* Januarias nostras). It did not even fall *on* the Ides of January, much less after them. To fall *within* them it must have fallen *short* of them; and if *short* of them *at all, one day* short at least.

Pliny was well aware that an equable date like Mecheir 6 must recede perpetually on a fixed one like the Ides of one of the Roman months; and that, if the former at a given time was not falling *beyond,* or even *on,* the latter, it must fall short of it ever after. He was aware also that this had long been the case in his own time. We hope to see by and by from his own testimony that he knew the first of the equable Thoth in his own time to be falling very near the beginning of August; and therefore the 6th of Mecheir very near the beginning of January. But he found this date recorded in some of the earliest accounts of the voyage from Egypt to India and back again by means of the wind Hippalus; and as none of them could go further back than A.D. 48, it must be understood of the relation of the equable Mecheir 6 to the Ides of January between A. D. 48 and 51. We infer therefore that, as the 6th of Mecheir between these extreme dates fell one day at least short of January 13 Roman, so the Julian January 13, which coincided with the former between the same terms, did the same. Consequently that the *first* of January Roman between A. D. 48 and 51 fell on the *second* of January Julian. Our Roman calendar for those four years will shew that such was actually the case. But at present we are confirming our calendar by facts, and not explaining facts by our calendar; and there is

yet other evidence to the same effect, that not only for these four years, but even longer, (down to A.D. 56 or 57 at least,) such was the actual relation of the Roman to the Julian Kalends, that the first of the Roman months fell on the second of the Julian of the same name.

ii. *Calendar of Claudius the Tuscan.*

It has been seen, from the particular account of this calendar which we had occasion to give in a former part of the present work[w], that it was critically accommodated, both in its relation to the equable year and in its hebdomadal characters, to *one* year, A.D. 51–52. The style of this calendar throughout was the Roman; that is, its dates were all taken from the Julian calendar of the time being in the sense of the Roman, and were all expressed agreeably to the Roman idiom: but each of the criterions just adverted to, and other arguments of an equally critical nature, left no doubt that the true Julian terms corresponding to those in this calendar in every instance were one day higher than the Roman; that is, the first of January Roman in this compilation of Claudius denoted the second of January Julian: and so in proportion in every other instance, all round the year. Such then was *de facto* the relation of the Roman to the Julian Kalends A.D. 51–52: viz. that the Kalends of every Roman month were then falling on the second of the Julian month of the same denomination.

We saw too that, the calendar of Columella being compared with this of Claudius month by month and almost day by day, there was the closest agreement between them; so that in repeated instances one might seem to have been only a literal version of the other: yet that neither was taken from the other, nor possibly could have been, if both were compiled about the same time. The true explanation of this agreement was that both were adapted to the same latitude, yet that both were put together, with the same care and exactness and the same degree of truth to nature and to the matter of fact, from the same or similar data, and on the same or similar principles: under which circumstances, independent as they were in their origin and the work of distinct

[w] Diss. xi. ch. v. Vol. ii. 460 sqq.

authors, they could not fail to exhibit repeated proofs of agreement and even of identity.

We observed at that time that the date of Columella's Parapegma might be determined from the internal evidence of his work De Re Rustica; and we are desirous of making good that observation. We shall therefore begin with inquiring into the date of this work of his, De Re Rustica; and we shall afterwards pass to the consideration of the details of his calendar: in the examination of which we shall treat it as still an open question what was the particular relation of the Roman to the Julian Kalends when Columella was drawing up this compilation; and whether that point cannot be ascertained and determined by means of the internal evidence of the compilation itself, and yet on some other principle than that which has been already explained and illustrated at large, its general and particular agreement with the calendar of Claudius the Tuscan.

iii. *Calendar or Parapegma of Columella. Personal history of Columella; and probable date of his work* De Re Rustica.

The personal style and designation of Columella, as it appears from the title of his work, was Lucius Junius Moderatus Columella. He was of Spanish extraction, and of the Provincia Bætica in Spain. He mentions Marcus Columella, an uncle of his; well versed in the learning of the times and one of the most notable farmers in the province: M. quidem Columella patruus meus vir illustribus disciplinis eruditus ac diligentissimus agricola Provinciæ Bæticæ[x]: and from another allusion to him[y] it may be inferred that he belonged to the Municipium Gaditanum. Columella himself was originally of Gades; as appears from his own testimony, where he is speaking of the different kinds of lactucæ, one of them the production of Gades:

> Et mea quam generant Tartesi litore Gades
> Candida vibrato discrimine candida thyrso est[z].

His work De Re Rustica however was written at Rome, or in the neighbourhood of Rome: Itaque Campania quoniam vicinum ex nobis capere potest exemplum[a].

[x] v. 5. § 15: cf. xii. 21. § 4: 43. § 5. De Hort. Cultu, 185: cf. 192.
[y] vii. 2. § 4, 5.
[z] Lib. x.
[a] v. 4. § 3.

With respect to his age, i. he is repeatedly referred to by Pliny, and has a place assigned him among Pliny's authorities[b]. He must therefore have been older than Pliny, and the date of his Historia Naturalis at least; i. e., as we hope to see by and by, than A. D. 76.

ii. Among the authorities specified by Columella himself one is C. Matius[c]; and it seems to be agreed that he means by him the same individual of whom Pliny also has made mention as 80 years before his own time: Primus C. Matius ex equestri ordine Divi Augusti amicus invenit nemora tonsilia intra hos lxxx annos[d]: i. e. circa B. C. 4: known also as the first who had produced a variety of the apple, called after him Μῆλα Ματτιανά[e]; and the same no doubt to whom there is a letter extant from Cicero[f], as well as his answer to it: both written B. C. 44 soon after the death of Julius Cæsar.

iii. Another person, older than Columella, and mentioned by him is L. Volusius Saturninus: Sed et ipse nostra memoria veterem consularem virumque opulentissimum, L. Volusium, asseverantem audivi[g]. There is no reason to suppose that this was the same who died U. C. 809 A. D. 56[h], at the age of 90, and in office at the time as Urbis Præfectus[i]; and not rather the individual who died U. C. 773 A. D. 20[k] in the reign of Tiberius: which being the case, Columella could not have been writing before A. D. 20 at least.

iv. It appears however that the most recent authors on the same subjects as himself, and those of the greatest reputation, were these three, Cornelius Celsus, Julius Atticus, and Julius Græcinus; of whom the two first (whether contemporaries of each other or not) were both older than the last: Non minorem tamen laudem meruerunt nostrorum temporum viri Cornelius Celsus et Julius Atticus: quippe Cornelius totum corpus disciplinæ quinque libris complexus est. hic de una specie culturæ pertinentis ad vites singularem librum edidit. cujus velut discipulus duo volumina similium

[b] Vide the Indices of the several Books.
[c] xii. 4. § 2: 44. § 1.
[d] H. N. xii. 6.
[e] Athenæus, iii. 23. Cf. Suetonius, Dom. xxi. 2,
[f] Ad Fam. xi. 27. 28. Cf. Ad Attic. xv. 2. Suetonius, Julius Cæsar, lii. § 4. Tac. Ann. xii. 60.
[g] i. 7. § 3.
[h] Tacitus, Ann. xiii. 30. 25.
[i] Cf. Pliny, H. N. vii. 12. 79, 80. 49. 212: xi. 90. 464.
[k] Tacitus, Ann. iii. 30. 2. 31.

præceptorum de vineis Julius Græcinus composita facetius et eruditius posteritati tradenda curavit[l]. This Julius Græcinus, we apprehend, was the father of the Agricola of Tacitus[m]; in which case, Columella could not have been writing before the first or second year of Caligula A. D. 37–38: in one of which Græcinus, the father of Agricola, was put to death by him[m]. Nor does it appear that Agricola his son was born after his father's death; and yet his birthday was the Ides of June[n] *: from which it would follow that if Græcinus was put to death A. D. 38 it must have been after the Ides of June at least.

v. Another person, who makes a figure at this period of Roman history, and is mentioned by Columella, is Gallio. That Gallio and he were contemporaries appears from the fact that the tenth book of his work, which treats of gardening, was written in verse to oblige this Gallio and P. Silvanus to whom the work in general is dedicated: Sed jam . . quæ reliqua nobis rusticarum rerum pars superest de cultu hortorum, Publi Silvane, deinceps ita ut tibi et Gallioni nostro complacuerat in carmen conferemus[o]. If this Gallio was Lucius Junius Gallio, the brother of Seneca, we refer for the chronology of his personal history to our Dissertations[p]. He was living as late as U. C. 818 A. D. 65; but was put to death in that year along with Seneca, and his other brother Annæus Mella, the father of Lucan. On this supposition

* On this point indeed Tacitus is not consistent with himself. He supposes Agricola to have been 55 complete at his death, x Kal. Septembres, Collega et Prisco Coss. U. C. 846 A. D. 93. If so, he must have been born U. C. 791 A. D. 38. In reality then he must have been born on the Ides of June U. C. 791 A. D. 38; and not, as the text of the Vita with its present reading cap. 44 implies, U. C. 793 A. D. 40. According to Tacitus (Vita, 4) his father was put to death because he had refused to accuse M. Silanus: and M. Silanus himself (Dio lix. 8) was obliged to make himself away in the first year of Caius, A. D. 37–38. Græcinus therefore must have been put to death A. D. 38; and Agricola must have been born the same year too: either just before, or just after, that event.

[l] i. 1. § 14. Cf. iii. 2. § 24. 31: 3. § 7: 17. § 4: iv. 3. § 6: 8. § 1: 10. § 1: 28. § 2.

[m] Dio, lix. 8. Suetonius, Caius, xxiii. 7. Agricola, 4. Cf. Seneca, Opp. iv. 71. De Beneficiis, ii. xxi. 4. 5. Epp. xx. ix. 5. Opp. ii. 135.

[n] Agricola, 44.

[o] ix. 16. § 2.

[p] i. 174: iv. 142. 146, 147. 148. Cf. Dio, lx. 33. If the *Junius Gallicus there* mentioned *was Junius Gallio, (which* however *is doubtful,) this fact mentioned by Dio would prove that he must* have been living until near the end of the reign of Claudius.

Columella could not have been writing after A. D. 65. And if the Gallio to whom he refers was not this brother of Seneca, but Junius Gallio the orator who adopted him and gave him the name of Gallio, (which we apprehend to be the more probable supposition of the two,) he too was still living in the reign of Caligula[p]; and no doubt in the reign of Claudius also[p].

vi. Among his own contemporaries he mentions Seneca himself: Sed Nomentana regio nunc celeberrima fama est illustris, et præcipue quam possidet Seneca, vir excellentis ingenii atque doctrinæ: cujus in prædiis vinearum jugera singula culleos octonos reddidisse plerumque compertum est[q]. We may infer from Pliny[r] that the original owner of this estate was the grammarian Remmius or Rhemmius Palæmon; and that he bought it, according to Pliny as his text stands at present, 20 years before the time when he himself was writing: In hisce xx annis mercato rus[r]: and that it passed from him into the hands of Seneca within ten years afterwards; Intra decimum fere curæ annum. But the numbers in his text here must labour under some corruption; in proof of which it is sufficient to observe that Seneca, according to his account[r], bought this estate at a time when he was Princeps eruditionis ac potentiæ, i. e. in the acme of his reputation as a scholar and a philosopher, and of his influence at court too: and yet, as Pliny's numbers stand at present in both instances, it could not have been more than ten years before he himself was writing, that is before A. D. 76. If so, not before A. D. 66; a year or more after the death of Seneca himself: before which event too he had long ceased to have any influence at the court of Nero, though he might retain his reputation for learning and philosophy.

To clear up this point however of the true time when Seneca came into possession of this estate, we must endeavour to investigate the history of its former proprietor, Palæmon.

Remmius Palæmon Vicentinus (Vicetinus, as Jerome[s] terms him) is one of those grammatici of antiquity whose lives were written by Suctonius; and have come down along with his Lives of the Cæsars. It might be supposed that he

p Ibid. loc. cit.
q iii. 3. § 3.
r H. N. xiv. 5. p. 40-45.
s Thesaurus Temp. Ol. 206. 4. Ad Claudii 8.

must have been a contemporary of Virgil's; as he is said to have applied to himself the compliment which Virgil pays to a certain Palæmon, in making him umpire in a contest of music between two of his shepherds[t]: but the truth is that he intended thereby merely to intimate that Virgil being a poet and inspired by the Muses had a presentiment of his own existence and his own reputation; which he thus left on record. The acme of this grammarian coincided with the reigns of Tiberius Caius and Claudius in succession. He taught at Rome, and had a flourishing school there, under the first and the last of those emperors: Postea manumissus (he was originally a verna, or homeborn slave) docuit Romæ, ac principem locum inter grammaticos tenuit, quamquam infamis omnibus vitiis, palamque Tiberio et mox Claudio prædicantibus nemini minus institutionem puerorum vel juvenum committendam[u]. And it was no doubt at this time that he acquired the fortune out of which he bought the estate in question: Luxuriæ ita indulsit ut sæpius in die lavaretur, nec sufficeret sumptibus; quamquam ex schola quadragena annua caperet ac non multo minus ex re familiari: cujus diligentissimus erat; cum et officinas promercalium vestium exerceret, et agros adeo coleret ut vitem manu ejus institutam satis constet trecenta sexaginta quinque vasa edidisse[w].

Now when Pliny refers to the reign of Tiberius, it is in such terms as the following: Tiberio Claudio principe ante hos annos xl institutum ut jejuni biberent[x]. The context determines this allusion to the reign of Tiberius, not to that of Claudius; though the latter is called Tiberius Claudius more commonly than the former. In fact forty years from A. D. 76 go back to A. D. 36, one year before the end of the reign of Tiberius, but five at least before the beginning of that of Claudius. The passage quoted supra In hisce xx annis is german to this of Ante hos annos xl in all but the xx for the xl; and how easy it might be for the Roman numeral of xl to be confounded with that of xx is self-evident. This correction being made in his text; the purchase of the estate by Remmius Palæmon will go back to A. D. 36: i. e. to the very time when he was certainly teaching at Rome, and had

[t] Suetonius, De Illustribus Gramm. xxiii. 3. Cf. Virgil, Eclogæ, iii. 50.

[u] Sueton. De Ill. Gramm. xxiii. 2.

[w] Ibid. 5.

[x] H. N. xiv. 28. p. 130.

very probably already made his fortune there. But this note of time does not necessarily imply that he bought this estate A. D. 36; only that he did not buy it before A. D. 36: *Intra* hosce xl annos. The true time when *he* bought it must be collected from that when Seneca purchased it from him; not more than ten years later, *Intra* decimum curæ annum: and, if that was when *he* too was on the zenith of his influence both literary and political, it cannot be dated earlier than the year of the marriage of Agrippina and Claudius U. C. 802 A. D. 49; before which he had only just been recalled from banishment, and in which, when Nero was adopted by Claudius, he himself was appointed his tutor[z]. Nor yet can it be dated much later, to come with propriety not much less than 30 years before the time when Pliny himself was writing; i. e. A. D. 76. And thus we shall reconcile Pliny Suetonius and Columella on this one point; and the result of the joint testimony of all the three concerning it will be that Remmius Palæmon must have bought this estate, so famous for its vines, about A. D. 39; that Seneca must have purchased it from him, A. D. 48 or 49*: and that this reference to it by Columella as already in his possession could not have been earlier than A. D. 48 or 49; though it might have been as early as either of those years itself.

This conclusion may be confirmed in the last place by another allusion which occurs in this work of Columella, where he is speaking of the comparative size of different natural productions respectively: Germaniam decoravit (natura) altissimorum hominum exercitibus: sed et alias gentes non in totum fraudavit præcipuæ staturæ viris. nam et M. Tullius Cicero testis est Romanum fuisse civem Nævium Pollionem pede longiorem quam quemquam longissimum; et

* Seneca's partiality for agriculture is illustrated by his own Epistles, (Opp. iii. Epp. lxxxvi. 13–18. xxxvi.) the date of which in general may be collected from the allusion to the destruction of the Colonia Lugdunensis by fire in the *hundredth* year from its foundation, which occurs in one of them, xcv. 1–14. It was founded U. C. 711. Cf. Dio, xlvi. 50. Tac. Ann. xvi. 13. 14. Seneca, iv. 383 sqq. De Morte Claudii, vi. 1. Supra, Vol. ii. 111. xliii. The date of this Epistle therefore was U. C. 810 A. D. 57.

[z] Cf our Dissertations on the Principles, &c. iv. 132, 133. 147, 148: i. 174. 448: iv. 252.

nuper ipsi videre potuimus in apparatu pompæ Circensium ludorum Judææ gentis hominem proceriorem celsissimo Germano [a]. With this we should compare the following of Pliny: Nævii Pollionis amplitudinem annales non tradunt: sed quia populi concursu pæne interemptus esset prodigii vice habitum. procerissimum hominum ætas nostra Divo Claudio principe Gabbaram nomine ex Arabia advectum ix pedum et totidem unciarum vidit [b]. There can be no question that he must have been speaking herein of the same person as Columella in the preceding passage. Compare with both the following also from Solinus: Postmodum Divo Claudio principe Gabbaram nomine ex Arabia advectum novem pedum et totidem unciarum: sed ante Augustum annis mille ferme non apparuit forma hujusmodi, sicut nec post Claudium visa est [c]. And though both Pliny and Solinus say this man was brought from Arabia, it would not follow from that fact that he might not have been a Jew. His name of Gabbara or Gabbaras seems to have been only the Latinized form of the Hebrew for a giant, or a man of great stature, Gabber, or Giber. In any case, whether a Jew or an Arabian, he was exhibited at Rome under Claudius; and no one like him was ever seen there before or after from Columella's time to Pliny's and Solinus'.

Now he was exhibited according to Columella at certain Ludi Circenses; and such games were in course at Rome in various months, in April, in September, in October: though when they are absolutely referred to they are most properly to be understood of the Ludi Circenses Magni; the stated date of which was from the Prid. Non. Sept. to the Pridie Idus Sept. But an allusion occurs in Solinus also to certain Ludi Circenses of Claudius, which must have been *extra ordinem;* Ingenia equorum etiam Claudii Cæsaris Circenses probaverunt [d]: and concerning these we think that there can be only two opinions; that they were either extraordinary games of that kind which made part of the secular solemnities U. C. 800 A. D. 47, or games of that kind exhibited in honour of his marriage U. C. 802 A. D. 49. Between these Pliny's testimony [d] (the source of this of Solinus) determines the allu-

[a] iii. 8 § 2. [b] H. N. vii. 16. 175. [c] i. 89. p. 25.
[d] xiv. 14. p. 155: cf. Pliny H. N. viii. 65. 500.

sion to Claudius' secular games. Columella's Ludi Circenses appear to be evidently intended of the same as these of Pliny and Solinus. Consequently of such exhibitions A. D. 47. In that case he could not have been writing until they were over; that is, until after A. D. 47: and that being the case, this allusion and the other to Seneca's estate, (which could not have come into possession of Seneca himself before A. D. 48 or 49,) must render it extremely probable that he was actually writing in A. D. 49. It would be sufficient for our purpose if his work was written any time between A. D. 47 and A. D. 56; and of that there can be no reasonable doubt. We are entirely of opinion however that its true date was A. D. 49 and 50: for it would probably employ its author more than one year.

iv. *Parapegma of Columella; and comparison of the Roman dates therein with the Julian.*

The Parapegma or calendar of Columella, as we have already seen [e], goes through the sidereal or natural phenomena of the celestial year from the beginning of January to the end of December in the civil year. Its dates are those of the Roman calendar for the time being; that is, those of the Julian calendar such as it then was in the actual administration of the Julian Correction at Rome. Yet it does not appear that his Parapegma was taken from Cæsar's; though the Julian Correction did embody a natural and a sidereal calendar of the same kind: from which too the dates which occur in the Fasti of Ovid, as far as they extend, seem to have been derived. To judge from his own testimony he did not think proper to borrow any thing of this kind which he might have met with ready constructed, even for the same latitudes and meridians; but preferred to compile one for himself from the materials supplied by the Parapegmata of the Greek astronomers, much older than the Julian Correction: Nec me fallit Hipparchi ratio, quæ docet solstitia et æquinoctia non octavis sed primis partibus signorum confici. verum in hac ruris disciplina sequor nunc Eudoxi et Metonis antiquorumque fastus astrologorum, qui sunt aptati publicis sacrificiis: quia et notior est ista vetus agricolis concepta

[e] Supra, Vol. ii. 466.

opinio, nec tamen Hipparchi subtilitas pinguioribus ut aiunt rusticorum litteris necessaria est [f].

The object of this Parapegma, like that of every other which once existed, was to note and define the risings and settings of the principal stars, or constellations, all through the sidereal year; as also the ingresses of the sun into the different signs of the natural or tropical year, particularly the cardinal ones—those which divided the natural year into the four seasons: and each in terms of the civil year; i. e. in this instance, of the Roman, in the sense of the Julian, calendar for the time being. And along with each of these classes of phenomena, both the sidereal and the tropical, it proposed to specify also the Ἐπισημασίαι, Significationes, or Symptoms, the affections of the air and the weather, supposed to depend on such natural occurrences; and either to accompany them critically when they happened, or to precede or to follow them by a definite interval of time. What authorities he was most likely to follow in such a compilation may be inferred not only from the passage just produced but also from the following: Accedit huc quod ille quem nos perfectum esse volumus agricolam siquidem artis consummatæ non sit, nec in universa rerum natura sagacitatem Democriti vel Pythagoræ (non) fuerit consecutus, et in motibus astrorum ventorumque Metonis providentiam vel Eudoxi [g], &c. They would be such as Democritus, Meton, Eudoxus; each of them known to have been an actual compiler of a Parapegma like his own: of which too those of the two latter in particular, both for the supposed accuracy of their observations, and for the critical sagacity and truth of their prognostications, were generally held in the greatest repute of all.

On the subject however of these compilations of antiquity the proper time and opportunity for entering more into details, and for explaining them more at large, would be the occasion of treating of the Metonic Correction among the Greeks; and along with it of the Solar calendar of Meton. We reserve these explanations then for the present. It may suffice to observe that such compilations were once exceedingly numerous; in particular among the Greeks: and that

[f] ix. xiv. 12. [g] Lib. i. Præfatio, § 32.

there was scarcely a natural philosopher, or pretender to science, among them who was not also the author of something of this kind. And yet, if we except the calendar of Claudius the Tuscan, the only Parapegmata which have come down to posterity entire, are that of Geminus, and that of Ptolemy commonly called De Apparentiis Fixarum. Each of these too is strictly a compilation; i. e. composed of materials taken from the Parapegmata of others, and collected and formed into one by Geminus and by Ptolemy, each for himself. In the compilation of Geminus there are observations attributed to Democritus, to Meton, to Euctemon, to Calippus, and to Dositheus; in that of Ptolemy, not only to these, but to the Egyptians, to Philippus, to Conon, to Hipparchus, to Metrodorus, and to Cæsar. And this is abundantly sufficient to prove that each must have been put together more or less from similar materials, borrowed from the same quarters; and that each must have incorporated much in itself which might be expected to appear in the other also.

The Parapegma of Geminus assumed for its epoch the summer solstice; for which it adopted the date of Meton and Euctemon, Karkinon 1 June 27[h], the ingress of the sun into the first point of Cancer: and as it goes through each of the signs in its order, beginning with this, and specifies at the ingress into each in its turn the number of entire days supposed to be taken up by the passage of the sun through it, there is no difficulty, nor uncertainty, in obtaining the Julian date of every subsequent ingress from this epochal or primary one of June 27, all round the sphere; nor the Julian date of every integral day in every sign, and of every phenomenon attached to that day in that sign.

In the Parapegma of Ptolemy the dates are given in terms of the fixed Egyptian calendar, the Alexandrine. But the relation of that to the Julian, and in every year of the proper cycle of leap-year of each, is well known; and we have given the necessary account of it in the first part of our work[i]. In the introduction to the calendar the author himself observes: Κεχρήμεθα δὲ τῇ καθ' ἡμᾶς (i. e. the Egyptian Greeks, and those of Alexandria in particular) τοῦ ἔτους χρονογραφίᾳ, διὰ (τὸ), τῆς κατὰ τὸ ἔτος ἐπουσίας ἐν ταῖς ἐμβολίμοις διὰ τεταετη-

[h] Cf. our Fasti Catholici, i. 155: ii. 409.

[i] Fasti, iv. 465. 477.

ρίδος ἡμέραις ἀποδιδομένης, ἐπὶ πολὺν χρόνον δύνασθαι τὰς αὐτὰς φάσεις ταῖς ὁμωνύμοις ἡμέραις ὡς ἐπὶ πᾶν ἐκλαμβάνεσθαι[k]. In every form of nòctidiurnal and annual time, which has a cycle of the leap-day four years in length, the sidereal and the civil dates of the same phenomena must of necessity meet in the *same* days of the *same* years of this cycle of the leap-day, until the precession of the mean sidereal on the mean Julian year amounts to 24 hours complete; and that is an effect which could not be brought about in less than 157 years[l]. And that this calendar of Ptolemy's was compiled *in* Egypt and among the Egyptians appears from the Scholium subjoined to it; in which its authorities are enumerated, and the parallels for which their observations were intended are distinguished asunder. It observes of the Egyptians among the rest: Τούτων δὲ Αἰγύπτιοι ἐτήρησαν παρ' ἡμῖν[m]. The calendar itself begins, Μὴν Θὼθ, ἤτοι Σεπτέμβριος· καθ' ἡμᾶς δὲ Αὐγούστου κθ'[m].

The plan on which it proposed to proceed is explained as follows[m]: Τῶν οὖν ἡμερῶν ἑκάστην ἀπὸ τῶν ἐν τῷ Θὼθ νεομηνιῶν ἐκτιθέμενοι κατὰ τὴν οἰκείαν τάξιν ὑπογράφομεν ἐφ' ὅσον ἔνεστι τὰς συντελουμένας ἐν αὐταῖς φάσεις κατά τινας τῶν ὑποκειμένων κλιμάτων ὥρας, προτάσσοντες ἑκάστης φάσεως τὸ πλῆθος τῶν συνισταμένων ἰσημερινῶν ὡρῶν τῆς μεγίστης ἡμέρας ἢ νυκτός[n]. The meaning of this is that the observations about to be recorded would be found to be applicable to *five* parallels of latitude, varying from one another in the length of the longest day by *half* an equinoctial hour; from the parallel of 13½ hours passing through Syene in Upper Egypt, to that of 15½ hours passing through the middle of the Pontus Euxinus: these hours as well as the day of the month being annexed to the observation in each instance, to indicate the parallel to which it applied. It appears too from the summary of the authorities, given at the end[o], whether Ptolemy's own or not, that the observations ascribed to the Egyptians applied to the *second* parallel where the longest day was 14 hours; those of Philip and Dositheus to the *third* where it was 14½;

k Fasti Catholici, iv. 462.

l Fasti, Introduction, App. lxxxiii. Table xxxvii.

m Ptolemæi Opp. iii. Pars ii. p. 53. 21. Cf. Fabricius, Bibl. Græca, iv. 430. Lib. iv. cap. xiv. 6.

n Cf. Ptolemæi Opp. iii. Pars ii. p. 13, 14.

o Ibid. p. 53. Cf. Uranologium, 93, 94.

those of Democritus, Hipparchus, and Cæsar, to the *fourth* where it was 15 hours; and those of Meton, Euctemon, Callippus, Eudoxus, Conon, and Metrodorus both to the *third* and to the *fourth* in common, between which the longest day varied from 14½ hours to 15 hours. The parallel of Rome and Campania, for which the longest day was 15 hours, came within the scope of this last designation. Observations, by whomsoever made, yet applicable to the third and the fourth parallels, (especially to the fourth,) could not fail to be applicable to that.

It is clear then from these accounts that these three Parapegmata, Geminus', Columella's, and Ptolemy's, must have been compiled from the same data; and that the authorities which Columella in particular professes to have followed, (the original Greek Parapegmata, Democritus', Meton's, Eudoxus',) must have been common to the other two. It is to be expected then that, if we compare Columella's with these other two, it should be found in repeated instances to exhibit the same observations, the same ἐπισημασίαι or prognostics, which occur in them also; with no difference in the mode or form of the representation in each but *this:* That i. such observations, ἐπισημασίαι, or prognostics, in the Parapegma of Columella should be found to be given in terms of the Roman calendar, and in that of Geminus in terms of the Celestial calendar, and in that of Ptolemy in terms of the Alexandrine calendar; and ii. That in the Parapegma of Columella such observations and prognostics or symptoms should be found dated indeed and defined or described, but not referred to their proper authors; and in each of the other two they should be found not only dated and circumstantially enunciated but ascribed to their proper authorities also.

And though it must follow under such circumstances that the sources of Columella's observations are left to be collected from these descriptions and these dates, compared with the same things in the other two; it would be no necessary consequence of that fact that they could not by those means be discovered. The descriptions and circumstances of distinction in these three calendars may be so clear in repeated instances and so critical as to leave no doubt concerning their identity in those instances. The entries in Colu-

mella having been thus identified with those of the other two, or with those of either of them; then the proper dates of the latter will be an infallible test and criterion of those of the former. The Julian dates of those in Geminus and in Ptolemy are known; and the proper Julian date of any one of their observations, which is also common to Columella, being known, it will be seen from it at once whether Columella's date in its Roman form is the same with this proper Julian one or not. This is therefore the test which we propose to apply to the Roman dates of the Parapegma of Columella; viz. whether they are the same, or not the same, with the Julian dates of the same observations in Geminus or in Ptolemy. It requires nothing beforehand for its application but the possession of these calendars all at once, so as to enable us to judge what there is in common in each; and a knowledge of the actual relation of the Celestial calendar of Geminus and of the Alexandrine calendar of Ptolemy to the Julian properly so called. It would however take up too much time to go through all the entries in these different compilations one by one; and our purpose will be answered by exhibiting only a part of them, sufficiently numerous and circumstantial to identify the calendar of Columella more or less completely with either, or both, of the other two, and to serve as an index of the proper Julian sense of his dates through that of their's.

Comparison of dates in the Parapegma of Columella with the same or similar dates in that of Geminus and that of Ptolemy[p].

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i. Columella, vi Idus Januarias Jan. 8 Roman.
Auster, interdum Favonius.

Geminus, Ægon or Ægokeros 16 January 9 to 10.
Εὐκτήμονι νότος χειμέριος κατὰ θάλασσαν.

Ptolemy, Tybi 13 January 8 to 9.
Αἰγυπτίοις νότος ἢ ζέφυρος. χειμαίνει δὲ κατὰ γὴν καὶ κατὰ θάλασσαν.

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[p] Columella, De Re Rustica, xi. cap. ii. Uranologium, 64-92. Ptolemæi Opp. iii. Pars ii. p. 21-52. Fabricius, Bibliotheca Græca, iv. 432-448. Lib. iv. Cap. xiv.

ii. Columella, v Idus Januarias Jan. 9 Roman.
Auster, interdum imber.

Ptolemy, Tybi 15 January 10 to 11.
Νότος πολὺς καὶ ἐπισημαίνει κατὰ θάλασσαν. βροντὴ καὶ ψακάς.

iii. Columella, xvi Kalendas Februarias Jan. 17 Roman.
Cancer desinit occidere. hiemat.

Geminus, Ægon 27 January 20.
* Καλίππῳ Κάρκινος λήγει δύνων. χειμαίνει.

iv. Columella, v Kalendas Februarias Jan. 28 Roman.
Auster aut Africus. hiemat. pluvius dies.

Ptolemy, Mecheir 3 Jan. 28 to 29.
* Λὶψ ἢ νότος χειμούμενος.

v. Columella, iii Kalendas Februarias Jan. 30 Roman.
Fidicula occidit.

Ptolemy, Horar. 15. Mecheir 5 Jan. 30 to 31.
* Ὁ λαμπρὸς τῆς λύρας ἑσπέριος δύνει.

vi. Columella, Kalendis Februariis Feb. 1 Roman.
Interdum Auster cum grandine.

Ptolemy, Mecheir (9 Fabr.) 8 Feb. 2 to 3.
* Αἰγυπτίοις νότος ἢ ζέφυρος. μεταξὺ χάλαζα.

vii. Columella, iii Nonas Februarias Feb. 3 Roman.
Fidis tota et Leo medius occidit. Corus aut Septentrio, nonnunquam Favonius.

Polemy, Hor. 14. Mecheir 10 Feb. 4 to 5.
* Ὁ ἐπὶ τῆς καρδίας τοῦ λέοντος ἑῴος δύνει. Εὐδόξῳ εὐδία, ἐνίοτε καὶ ζέφυρος.

Geminus, Hydron 14 February 5 to 6.
* Εὐδόξῳ εὐδία, ἐνίοτε καὶ ζέφυρος πνεῖ.

viii. Columella, vii Idus Februarias Feb. 7 Roman.
Favonii spirare incipiunt.

Geminus, Hydron 16 February 7 to 8.
Δημοκρίτῳ ζέφυρος πνεῖν ἄρχεται.

* ——— Hydron 17 Feb. 8 to 9.
Εὐτήμονι ζέφυρος πνεῖ. Καλίππῳ.... ζέφυρος πνεῖ.

Ptolemy, Hor. 15. Mecheir 13 Feb. 7 to 8.
Δημοκρίτῳ ζέφυρος ἄρχεται πνεῖν.

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ix. Columella, x Kalendas Martii Feb. 20 Roman.
Leo desinit occidere. venti septentrionales qui vocantur ornithiæ per dies triginta esse solent. tum et hirundo advenit.

Geminus, Ichthyon 2 Feb. 23 to 24.
Χελιδόνι ὥρα φαίνεσθαι, καὶ ὀρνιθίαι πνέουσι. Καλίππῳ δὲ λέων δύνων λήγει, καὶ χελιδὼν φαίνεται.

——— Ichthyon 4 Feb. 25 to 26.
Εὐδόξῳ .... ὑετὸς γίνεται καὶ χελιδὼν φαίνεται, καὶ τὰς ἑπομένας ἡμέρας λ' βορέαι πνέουσι, καὶ μάλιστα οἱ προορνιθίαι καλούμενοι.

Ptolemy, Mecheir 28 Feb. 22 to 23.
* Εὐκτήμονι ὀρνιθίαι ἄρχονται πνεῖν ψυχροί. χελιδόνι ὥρα φαίνεσθαι.

——— Mecheir 29 Feb. 23 to 24.
Αἰγυπτίοις καὶ Φιλίππῳ καὶ Καλλίππῳ χελιδὼν φαίνεται καὶ ἀνεμώδης κατάστασις.... Εὐδόξῳ ὑετός. (ἐπὶ) χελιδόνι καὶ βορέαι πνέουσιν οἱ καλούμενοι ὀρνιθίαι.

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x. Columella, viii Kalendas Martii Feb. 22 Roman.
Variæ tempestates. Halcyonei dies vocantur.

Geminus, Ichthyon 4 Feb. 25 to 26.
Δημοκρίτῳ ποικίλαι ἡμέραι γίνονται, ἀλκυονίδες καλούμεναι.

Ptolemy, Mecheir 30 Feb. 24 to 25.
* Δημοκρίτῳ ποικίλαι ἡμέραι καλούμεναι ἀλκυονίδες.

xi. Columella, Kalendis Martii March 1 Roman.
Africus, interdum Auster, cum grandine.

Ptolemy, Phamenoth 6 March 2 to 3.
* Αἰγυπτίοις λὶψ ἡ νότος ἡ χάλαζα.

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xii. Columella, Nonas Apriles April 5 Roman.
Favonius aut Auster cum grandine. nonnunquam hoc idem pridie. April 4 Roman.

Ptolemy, Pharmuthi 9 April 4 to 5.
* Αἰγυπτίοις, Κόνωνι, ζέφυρος ἡ νότος καὶ χάλαζα.

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xiii. Columella, Tertio Kal. Maias April 29 Roman.
Mane Capra exoritur. Austrinus dies. interdum pluviæ.

Geminus, Tauron 8 May 1 to 2.
* Εὐκτήμονι αἰξ· ἑῴα ἀνατέλλει. εὐδία. ὗει νότῳ ὕδατι.

Ptolemy, Hor. 15½. Pachon 5 April 30 to May 1.
Φιλίππῳ νηνεμία ἡ νότος. ψαχάζει.

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xiv. Columella, vii Idus Maias May 9 Roman.
Æstatis initium. Favonius aut Corus. interdum etiam pluvia.

Ptolemy, Pachon 15 May 10 to 11.
* Αἰγυπτίοις ὑετός. θέρους ἀρχή. Εὐκτήμονι ἄνεμος.

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xv. Columella, iv. Idus Junias June 10 Roman.
Delphinus vespere exoritur. Favonius. interdum rorat.

Geminus, Didymon 18 June 12 to 13.
* Εὐδόξῳ δελφὶς ἀκρόνυχος ἐπιτέλλει.

Ptolemy, Paüni (16 Fabr.) 17 June 11 to 12.
* Αἰγυπτίοις δι' ἡμέρας ψεχάζει.

xvi. Columella, Kalendis Juliis July 1 Roman.
Favonius vel Auster, et calor.

Ptolemy, Epiphi 8 and 9 July 2 to 3: and July 3 to 4.
* Αἰγυπτίοις, Καίσαρι, νότος καὶ καῦμα.

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xvii. Columella, vi Idus Julias July 10 Roman.
Prodromi flare incipiunt.

Ptolemy, Epiphi 17 July 11 to 12.
* Αἰγυπτίοις πρόδρομοι.

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xviii. Columella, vii Kalendas Augustas July 26 Roman.
Canicula apparet. caligo æstuosa.

Geminus, Leonton 1 July 28 to 29.
* Εὐκτήμονι κύων μὲν ἐκφανὴς πνῖγος δὲ ἐπιγίνεται.

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xix. Columella, vii Idus Augusti August 7 Roman.
Aquarius occidit medius. nebulosus æstus.

Geminus, Leonton 14 August 10 to 11.
Εὐκτήμονι πνίγη μάλιστα γίνεται.

Ptolemy, Mesore 16 August 9 to 10.
* Αἰγυπτίοις ἀργέστης ἢ νότος· ἀὴρ ὁμιχλώδης.

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xx. Columella, Pridie Idus Augustas August 12 Roman.
Fidis occidit mane, et autumnus incipit.

Ptolemy, Mesore 19 August 12 to 13.
* Φθινοπώρου ἀρχή.

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xxi. Columella, iii Kalendas Septembres August 30 Roman.
Etesiæ desinunt flare, et interdum hiemat.

Geminus, Parthenon 5 September 1 to 2.
* Καλίππῳ . . . ἐτησίαι πνέουσι (λήγουσι).

Ptolemy, Thoth 1 August 29 to 30.
Ἐτησίαι πανονται. Εὐδόξῳ ὑετίαι.

——— Thoth 3 August 31 to Sept. 1.
Αἰγυπτίοις ἐτησίαι παύονται.

* ——— Thoth 4 September 1 to 2.
Καλλίππῳ . . . ἐτησίαι παύονται.

xxii. Columella, iii Idus Septembris Sept. 11 Roman.
Favonius aut Africus. Virgo media exoritur.

Geminus, Parthenon 17 September 13 to 14.
* *Καλίππῳ παρθένος μέση ἐπιτέλλουσα ἐπισημαίνει.*

xxiii. Columella, xiv Kalendas Octobres Sept. 18 Roman.
Spica virginis exoritur.

Geminus, Parthenon 24 Sept. 20 to 21.
* *Καλίππῳ στάχυς ἐπιτελλει τῆς παρθένου.*

xxiv. Columella, xi Kalendas Octobres Sept. 21 Roman.
Favonius aut Corus. interdum Auster cum imbribus.

Ptolemy, Thoth 25 Sept. 22 to 23.
Αἰγυπτίοις ζέφυρος ἢ νότος καὶ δι' ἡμέρας ὄμβρος.

xxv. Columella, v Kalendas Octobres Sept. 27 Roman.
Hœdi exoriuntur. Favonius, nonnunquam Auster cum pluvia.

Geminus, Zygon 3 Sept. 29 to 30.
* *Εὐκτήμονι ἔριφοι ἐπιτέλλουσιν ἑσπέριοι. χειμαίνει.*

Ptolemy, Phaophi 1 Sept. 28 to 29.
* *Αἰγυπτίοις ζέφυρος ἢ νότος.*

xxvi. Columella, iv Kalendas Octobres Sept. 28 Roman.
Virgo desinit oriri. tempestatem significat.

* Geminus, Zygon 5 Oct. 1 to 2.
Καλίππῳ παρθένος λήγει ἀνατέλλουσα.

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xxvii. Columella, v Kalendas Novembris Oct. 28 Roman.
Vergiliæ occidunt. hiemat, cum frigore et gelicidiis.

Geminus, Scorpion 4 October 30 to 31.
* Δημοκρίτῳ πλειάδες δύνουσιν ἅμα ἠοῖ. ἄνεμοι χειμέριοι ὡς τὰ πολλὰ, καὶ ψύχη ἤδη καὶ πάχνη.

Ptolemy, Athyr 2 October 29 to 30.
* Δημοκρίτῳ ψύχη ἢ πάχνη.

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xxviii. Columella, iv Kalendas Novembris Oct. 29 Roman.
Arcturus vespere occidit. ventosus dies.

Geminus, Scorpion 5 Oct. 31 to Nov. 1.
* Εὐκτήμονι ἀρκτοῦρος ἑσπέριος δύεται, καὶ ἄνεμοι μεγάλοι πνέουσι.

Ptolemy, Athyr 3 Oct. 30 to 31.
* Φιλίππῳ ἄνεμος μέγας πνεῖ.

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xxix. Columella, iii Nonas Novembris Nov. 3 Roman.
Fidicula mane exoritur. hiemat, et pluit.

Geminus, Scorpion 10 Nov. 5 to 6.
* Εὐκτήμονι λύρα ἑῷος ἐπιτέλλει, καὶ ἐπιχειμάζεται ὑετῷ.

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xxx. Columella, viii Idus Novembris Nov. 6 Roman.
Idem sidus totum exoritur. Auster vel Favonius. hiemat.

Geminus, Scorpion 13 Nov. 8 to 9.
* Δημοκρίτῳ λύρα ἐπιβάλλει ἅμα ἡλίῳ ἀνίσχοντι· καὶ ὁ ἀὴρ χειμέριος γίνεται ὡς ἐπὶ τὰ πολλά.

Ptolemy, Hor. 15. Athyr 11 Nov. 7 to 8.
* Ὁ λαμπρὸς τῆς λύρας ἑῷος ἀνατέλλει. Μέτωνι ὑετὸς, θύελλαι.

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xxxi. Columella, vi Idus Novembris Nov. 8 Roman.
Vergiliæ mane occidunt. significat tempestatem. hiemat.

Geminus, Scorpion 15 Nov. 10 to 11.
* Εὐκτήμονι πλειάδες δύνουσι καὶ ἐπισημαίνει.

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xxxii. Columella, v Idus Novembris Nov. 9 Roman.
Hiemis initium.

Ptolemy, Athyr 15 Nov. 11 to 12.
* Αἰγυπτίοις καὶ Ἱππάρχῳ χειμῶνος ἀρχή.

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xxxiii. Columella, xii Kalendas Decembris Nov. 20 Roman.
Aquilo frigidus, et pluvia.

Ptolemy, Athyr 24 Nov. 20 to 21.
* Αἰγυπτίοις χειμέριος περίστασις. Εὐδόξῳ βορέας ψυχρός.

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xxxiv. Columella, Pridie Kalendas Decembris Nov. 30 Roman.
Favonius aut Auster. interdum pluvia.

Ptolemy, Chœac 4 Nov. 30 to Dec. 1.
* Αἰγυπτίοις ζέφυρος ἢ νότος δι' ἡμέρας ὕει.

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xxxv. Columella, iii Idus Decembris Dec. 11 Roman.
Corus vel Septentrio. interdum Auster cum pluvia.

Ptolemy, Chœac 15 December 11 to 12.
* Αἰγυπτίοις ἀργέστης ψυχρὸς ἢ νότος καὶ ὄμβρος.

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xxxvi. Columella, iv Kalendas Januarias Dec. 29 Roman.
Aquila vespere occidit. hiemat.

Geminus, Ægon 7 Dec. 31 to Jan. 1.
* Εὐκτήμονι ἀετὸς ἑσπέριος δύεται, καὶ χειμαίνει.

Ptolemy, Hor. 14½. Tybi 4 Dec. 30 to 31.
* Ὁ λαμπρὸς τοῦ ἀετοῦ ἑσπέριος δύνει . . . Εὐκτήμονι ἐπιχειμάζει.

In reducing the above dates from Geminus and Ptolemy to an uniform standard, that of the Julian year of chronology, we have assumed that Geminus, (who adopts as his epoch the ingress into Cancer according to Meton and Euctemon,) reckoned from the traditionary date of that ingress, πρωΐα, or about 5 A. M.; and therefore that the first noctidiurnal cycle in his calendar is to be supposed to bear date from June 27 at 5 A. M. to June 28 at 5 A. M. as the same with Karkinon 1: and every other in proportion. We have assumed that Ptolemy in like manner, according to the rule which he himself lays down and follows in his Magna Compositio, reckoned his noctidiurnal cycle in this calendar De Apparentiis from noon to noon; and that consequently his first noctidiurnal period is to be supposed to bear date from August 29 at noon to August 30 at noon, as the same with Thoth 1: and every other in proportion. And since it appears from the above comparison that the dates of Geminus and those of Ptolemy, taken from the same authorities, and intended of the same natural facts, being reduced on this principle respectively from their own calendar to the Julian, in repeated instances agree together; this must be a sufficient proof that the principle on which we have proceeded in so reducing them cannot be wrong. In some few instances indeed, their respective dates, though referred to the same authorities and intended of the same natural phenomena, appear to differ by a day. But in these instances there may be, and probably is, an error of reading in the numbers of the text of one or other of them, as it stands at present.

With respect to Columella, we may take it for granted that his dates are all to be understood to be reckoned according to the Roman rule, from midnight to midnight. Now the circumstantial criteria of the entries which we have thus extracted from these different calendars, and have compared together one after another, are such in repeated instances as can leave no doubt of their identity; nor consequently that Columella's, though not referred to any particular authority by name, were really taken from the same quarters as those of the other two. Columella's entries then being collated with those of the other two throughout, it is observable, that the dates which he assigns to his own, understood as Julian,

are never less than one day lower than those of Ptolemy, nor less than two days lower than those of Geminus; or if they appear to be in some few instances the same with Ptolemy's, and in some few three days lower than those in Geminus, instead of two only, these apparent exceptions to the rule in both cases may likewise be due to some accidental corruption of the numbers in the text of one or other of these calendars, in those instances also. In the majority of cases, and those too of entries taken from the same quarters, and clearly identical, the fact holds good as we assert; that Columella's dates are one day lower than Ptolemy's, and two days lower than Geminus'—all being considered as Julian alike. It holds good in so many instances, and under such critical circumstances, that it cannot be resolved into an accidental coincidence. It must have been something necessary and founded in the nature of things.

With regard then to the explanation of this phenomenon: The sources from which Columella's data were derived were the Greek Parapegmata, Democritus', Meton's, Euctemon's, Calippus', and Eudoxus' more particularly. The common Greek rule of the Noctidiurnal cycle universally was to reckon it from sunset to sunset [q]; and there is no reason why we should not suppose that such was the rule observed in these ancient Greek Parapegmata: viz. that the dates recorded in them were reckoned from sunset. It follows that all such dates, taken from these sources originally, and transferred to the calendar of Geminus, would be set 12 hours in advance; and transferred to that of Ptolemy would be set 18 hours in advance: and therefore as transferred to that of Columella and reduced to the Roman rule of midnight either would be set forward six hours, or set back eighteen; between which it appears that he must *de facto* have preferred the latter.

Now this accounts at once for one of the *two* days' stated difference, which appears to hold good between the dates of Columella and the dates of Geminus, and those of Ptolemy, the same with those of Geminus; and it is thus seen to have been purely accidental: and to be resolvable simply into the difference of a *positive* rule, that of the reckoning of the

[q] Cf. our Fasti Catholici, i. 164 sqq.

Noctidiurnal cycle, which each of these compilations chose to prescribe for itself. In the original calendars, from which they all derived their materials alike, the *actual* rule of this kind was sunset. In Geminus' the *positive* rule was sunrise next after, not next before, this point of sunset. In Ptolemy's the *positive* rule was noon next after the same too, not next before it. And it is manifest that under such circumstances Geminus' entries of this kind and Ptolemy's, under their proper dates in their respective calendars, could not fail to agree. In Columella's the *positive* rule is midnight; and midnight before not after the point of sunset in question. A given date then in his compilation, though taken from the same sources originally, must anticipate an *entire* day on the same in theirs.

One half then of this difference of two days between them is thus accounted for, simply by the difference of their rule of the Noctidiurnal cycle respectively. But the other half, that is, the other day, cannot be accounted for on any such principle as that. It cannot be resolved into the difference of a positive rule, or a difference of reckoning of any kind. It is not in fact a real difference at all, but only a nominal or apparent one. Allow one day for the actual difference between a given date in Columella and the same date in Geminus, which is required by the difference of the actual rule of the Noctidiurnal cycle in each; and the former will be absolutely the same with the latter, and *vice versa*. The rest is a seeming difference not a real one. It is due to the ambiguity of one of Columella's dates in the proper style of their own calendar, compared with the same in the Julian; and it is explained and seen to be only nominal, as soon as it is understood that January 1 in his calendar denoted January 2 in the Julian: and so in proportion in every other instance *.

* That the conclusion, at which from the method of reasoning here employed we have thus arrived, has not been mistaken at last is strongly confirmed by the fact of its agreement with the results deduced in like manner from the comparison of the calendar of Columella with that of Claudius Thuscus. These calendars appeared from that comparison, *mutatis mutandis*, to have been entirely the same. Now the Roman dates in this latter throughout were one day higher than the Julian of the same

denomination; so then must those in the former also have been. In fact there is one date in the calendar of Columella, and not found in that of Claudius, (consequently peculiar to Columella's,) which is competent of itself to decide *this* question; and that is the date of the Kalends of May: with the remarkable entry attached to it of which we gave an account (Vol. ii. 527). The Julian date really meant by this Roman date could have been nothing but May 2; and the fact being thus established in a single instance, that any one of Columella's Roman dates really denoted the next higher Julian date, it must vouch for the truth of the same fact all round his calendar. Can any one for instance admit that the Kalends of May in the style of Columella denoted May 2, and not admit that the Kalends of April denoted April 2, or the Kalends of June June 2? and so on, with every date before and after it.

There are two entries in this Parapegma of Columella, which have not yet been particularly noticed; and yet they are too remarkable to be passed over without calling the reader's attention to them. One of them is that which occurs opposite to xvi Kalendas Januarias, Dec. 17 Roman; Brumale solstitium, ut Hipparcho placet: itaque tempestatem sæpe significat. The other comes opposite to ix Kalendas Januarias, Dec. 24 Roman; Brumale solstitium sicut Chaldæi observant. Each of these is singular of its kind; i. e. no similar date is any where else attributed either to Hipparchus or to the Chaldæans: neither the vernal equinox, nor the summer solstice, nor the autumnal equinox.

After what has been explained, it will now of course be understood that the true Julian date denoted by the xvi Kalendas Januarias in the first of these instances was December 18, and that which was meant by ix Kalendas Januarias was December 25. With regard then to the explanation of these two dates; in the passage produced supra, p. 150, Columella observed—Nec me fallit Hipparchi ratio quæ docet solstitia et æquinoctia non octavis sed primis partibus signorum confici: and it is very probable that the true meaning of this observation would never have been divined without the benefit of the light which is reflected upon it by the date here attributed to Hipparchus. It might *naturally* and it would almost seem as if it was *necessarily* to be inferred from that observation that Hipparchus dated the solstices and the equinoxes just as a modern astronomer would do; i. e. in the *first* degrees of their proper signs in the natural or tropical sphere. And yet, if this entry was truly attributable to Hipparchus, it must be evident from it that such an inference would have been entirely and totally mistaken. The true winter solstice, for instance, in the time of Hipparchus, (about one hundred years before the Julian Correction, when it was falling on December 23,) must have been falling on December 24, or at the earliest some time on December 23. Yet this entry of Columella's affirms that he dated the winter solstice December 18. But the truth is that by the first degrees or *primæ partes* in question in this instance, as opposed to the *octavæ partes* or eighth degrees, Hipparchus did not mean the first degrees of the tropical sphere, but the first of the sphere of Mazzaroth; or of a sphere analogous to that. In fact when the

8th degrees in such a case as this are opposed to the 1st degrees; it is only the 8th in the sphere of Mazzaroth and the 1st in the natural or tropical which are meant: and between the 8th of the former and the 1st of the latter, or *vice versa*, when so opposed to and contradistinguished from one another, there could be no difference. The 8th in the former and the 1st in the latter, though distinct in themselves and relatively to their proper spheres, were not distinct relatively to the epoch or place of one and the same cardinal point, and at the same time, in both. A given point at a given time was common to both; and its epoch was both in the 8th degree of the one, and in the first of the other, and *vice versa*, at once.

That Hipparchus was aware of such a distinction as that of the sphere of Mazzaroth and of the natural sphere, and of the relation supposed to exist between them, whereby the latter was assumed to bear date in the eighth degrees of the former, we have seen. Nor is there any reason why we should not suppose that in common with the rest of the astronomers of his time, and out of implicit deference to the authority of the Egyptians, he should himself have adopted this distinction, and the doctrines connected with it; until at least he began to inquire for himself, and was led on by his own more just and exact observation of the actual phenomena of nature to very different conclusions. In fact, if he really dated the winter solstice, as Columella here asserts, on December 18, he must have adopted it more implicitly than any other astronomer of antiquity who could be mentioned; for, though almost every one may be found dating the cardinal points in the 8th degrees in a particular sense and relation, this is the only instance on record of a solstice or an equinox dated in the 1st degrees in the same sense and in the same relation also.

Hipparchus was certainly the author of a Parapegma, or calendar, like this of Columella himself or any similar compilation of antiquity. And though we do not know much, if any thing, of the history of this calendar; yet it was probably his work as a young man, and composed for the latitude of Nicæa, his native city, in Bithynia. Cf. our Fasti Catholici, i. 183, note. It was probably older than his Commentary on Aratus, still extant; for in this latter he clearly recognizes a different doctrine concerning the place of the cardinal points from that which is attributed to him here by Columella: viz. their falling in *primis partibus* of their proper sphere. The entry in Columella was probably taken from this Parapegma of Hipparchus; and Columella's observation, about his dating the solstices and equinoxes in the first degrees in opposition to the eighth degrees, we may presume, was ultimately founded upon it also.

Now December 18 being the Julian date of the first degree of Ægon, December 25 must have been the Julian date of the 8th of Ægon; and, in the ordinary sense of the language applied to such distinctions, the Julian date of the 8th of Ægon would be understood to mean the Julian date of the winter solstice. If then Hipparchus really dated the winter solstice of Mazzaroth on Dec. 18 he must have dated the winter solstice in the natural sphere on Dec. 25. And such a date for the winter solstice

as December 25, from analogy and on the principle of consistency and of the same or a similar rule of reckoning all round the sphere, would imply that of March 26 for the vernal equinox, that of June 25 for the summer solstice, and that of September 24 for the autumnal equinox. These dates could not have denoted the true equinoxes nor the true solstices in the time of Hipparchus. They must each have been two days in excess or in defect of the truth for his time. But it is very observable that they would very exactly have expressed the *mean* equinoxes and the *mean* solstices in his time; especially in the early part of his time, and at that period of his life when he may most probably be supposed to have been the author of such a compilation as his Parapegma. It appears from Ptolemy (see our Fasti Catholici, ii. 409) that he was actually engaged on observations, which had for their object to determine the true length of the natural year, from B. C. 162 to B. C. 128 at least; that is 34 years. He must have compiled his Parapegma before he began that series of observations, if it embodied assumptions and principles so different from those conclusions to which his own observations ultimately led him. When then can he be supposed to have compiled this Parapegma? or at what period of his life? When he was less than 30 years of age? For if not, it is far from impossible that it might have been actually compiled and published B. C. 169; seven years before B. C. 162, when he set about the series of observations of his own: and 41 years before B. C. 128, the last of those which have been recorded.

Now this year, A. D. 169, as our General Tables will shew, the mean vernal equinox was actually falling on March 26, for the meridian of Jerusalem, very near the point of midnight; and for that of Nicæa in Bithynia still nearer to it. Hipparchus' rule of the noctidiurnal cycle appears to have been to reckon it from midnight. (Cf. our Fasti Catholici, i. 160.) And it is very possible that he adopted it at this time; and perhaps on account of this very coincidence, as much as any thing else. In a sphere like that of Mazzaroth, as we observed in our former work (Fasti Cath. iii. 241.) no regard could be paid to any but fixed and immoveable points of distinction, such as the mean equinoxes or solstices in comparison of the true. And if the length of the natural year was implicitly assumed as the same with that of the mean Julian, (as Hipparchus himself must once have assumed it,) no epoch could have been more convenient on every account than this of B.C. 169, for laying down a scheme of the sphere like that which Hipparchus appears to have some time or other delineated; wherein the mean vernal equinox was assumed on March 26, the mean summer solstice on June 25, the mean autumnal equinox on September 24, and the mean winter solstice on December 25.

With regard to the other entry, that of the winter solstice according to the Chaldeans, December 25; we pointed out the principle, on which it was to be explained, in our former work (Fasti Cath. iii. 446: 475). The second period of 800 years in the Chaldee sphere bore date B. C. 306: and the first of Ægon, in the sphere of Mazzaroth, at that time might be assumed December 12–13. In three periods of 80 years, or 240 years, after

SECTION VII.—*On the relation of the Roman to the Julian Kalends* A. D. 59. *Solar Eclipse, April* 30. A. D. 59.

Solis defectum Vipsanio et Fonteio Coss. qui fuere ante paucos annos factum pridie Kalendas Maias Campania hora diei inter septimam et octavam sensit; Corbulo dux in Armenia inter horam diei decimam et undecimam prodidit visum: circuitu globi alia et aliis detegente et occultante[r].

These consuls represent U. C. 812 of Varro A. D. 59 the 104th Julian year. There was, it appears, Pridie Kalendas Maias, April 30 Roman, this year, a solar eclipse between the 7th and the 8th hour of the day in kairic time, for the meridian of Campania; which would not be sensibly different from that of Rome. There is a solar eclipse in Pingré's Tables, (central in Europe,) April 30 A. D. 59, at 1 P. M. for the meridian of Paris, 1 42 P. M. for that of Rome, mean time. The true date for this phenomenon was probably somewhat later; and if so only so much the nearer to its actual date in kairic time for the meridian of Rome, 38 days after the vernal equinox; when one hour of kairic time for that latitude would be equal to one hour and ten minutes at least of mean time. Moreover the latitude of Artaxata in Armenia being two degrees south of that of Rome, and its meridian being about 33° east of that of Rome; the time of this

this time, i. e. B. C. 66, its date would be assumed Dec. 15-16: and that being the date of the first degree, the date of the tenth would be December 24-25; i. e. critically December 25. In the Chaldean sphere of Mazzaroth the tropical points were laid down in the 10th degrees, i. e. critically at the end of the tenth. We saw fresh proofs of that fact (Vol. iii. 347), when treating of the astrological sphere of the Chaldees and of the horoscope of Augustus. Consequently December 25 from B. C. 66 forwards was the Chaldee date of the winter solstice. And though in strictness, after the lapse of another period of 80 years, which would be the case A. D. 15, it would begin to be reckoned to be December 26, it may very well be supposed that in Columella's time, (only 34 years later than A. D. 15,) it might still pass current as December 25. Or if that should not be conceded to us, it is still open to conjecture that the reading in Columella's text, ix Kalendas Januarias, may be in error for viii Kal. Januarias: and how easily viii Kalendas might have got corrupted into viiii Kalendas, we need not say.

[r] Pliny, H. N. ii. 72.

eclipse for that meridian would be 2 hours 12 minutes later than for that of Rome; so that, if it was actually observed in the vicinity of Rome between the 7th and the 8th hour, it might and probably would be observed in the neighbourhood of Artaxata between the tenth and the eleventh *.

The rupture between the Romans and the Parthians, which gave occasion to the presence of Corbulo in Armenia at the time of this eclipse, happened in the first year of Nero, or rather in the last of Claudius; before October 13 Roman U. C. 807 A. D. 54, the day of the death of Claudius: though the news of it arrived at Rome only after that event [s]. Corbulo was appointed to the command in Armenia U. C. 808 A. D. 55 [t]. Affairs remained tranquil in that quarter for the rest of U. C. 808 A. D. 55; for U. C. 809 A. D. 56 [u]; and for U. C. 810 A. D. 57 [w]: but the next year [x] U. C. 811 A. D. 58 the misunderstanding between the two governments broke out afresh.

The proceedings of that year are related by Tacitus [y] in their proper place. The consular year of Vipsanius and Fonteius [z] entered as usual on the Kalends of January U. C. 812 A. D. 59. The eclipse in their year is mentioned by him [a], among other *portenta* supposed to have occurred soon after the murder of Agrippina; which had been perpetrated only a short time before, at the Quinquatrus [b], i. e. between March 19 and 23 Roman: and Nero himself was then in Campania [c]; that is at or near to Baiæ [d].

* Artaxata was taken and burnt to the ground by Corbulo, the year before the eclipse, A. D. 58 Tac. Ann. xiii. 34. 41. The year after, A. D. 59, (xiv. 20. 23,) he marched upon Tigranocerta. It is probable that he actually witnessed the eclipse at Tigranocerta, see cap. 24. And as the latitude of Tigranocerta was 5° south of that of Rome, and the longitude 39° east, or two hours + in time; for that latitude and that meridian the date of the eclipse in Kairic time would be still more exactly between the 10th and the 11th hour of the day.

[s] Tacitus, Ann. xii. 69: 64: xiii. 1–6: 11.
[t] Ibid. xiii. 8: cf. 7—9: which belong to U. C. 806 and 807 A. D. 54 and 55. Also xiii. 11.
[u] Tacitus, Ann. xiii. 25.
[w] Ibid. 31.
[x] Ibid. 34.
[y] Ibid. 34—41.
[z] Ibid. xiv. 1.
[a] Ibid. 12.
[b] Ibid. 4. Suetonius, Nero, xxxiv. 6.
[c] Tacitus, Ann. xiv. 14: 13.
[d] Ibid. 4. Cf. Dio, lxi. 13, 14.

The history of the proceedings in Armenia is resumed by Tacitus U. C. 813 A. D. 60[e]; but evidently from the point of time to which they had been brought down the year before[f]: so that if Corbulo was still in that country in U. C. 813 A. D. 60 there can be no doubt that he must have been there U. C. 812 A. D. 59. In fact he withdrew from Armenia, only to assume the presidency of Syria; vacated in this very year, U. C. 813 A. D. 60, by the death of Ummidius Quadratus[g].

This eclipse of Pridie Kalendas Maias U. C. 812 must have been that which is mentioned by Dio or Xiphilinus also, in connection with the events which arose out of the death of Agrippina[h]: Ὁ μέντοι ἥλιος σύμπας ἐν μέσαις ταῖς θυσίαις, ταῖς ἐπὶ τῇ Ἀγριππίνῃ κατὰ τὸ ψήφισμα γενομέναις, ἐξέλιπεν ὥστε καὶ ἀστέρας ἐκφῆναι. We have seen[i] that it was referred to by Philostratus also, in his life of Apollonius; only under a wrong year, A. D. 62 instead of A. D. 59; and we apprehend it must have been the eclipse intended in the following allusion to a phenomenon of that kind which occurs in Marcianus Capella[k]; though singularly corrupted, as his text stands at present, in every particular but the time of the day when it happened: Alpiano et Fonteio Coss. undecimo Kalendas Maii defectus solis fuit, qui in Campania hora diei septima visus in Armenia ejusdem diei undecima comprobatur.

This therefore is a very authentic testimony to the fact that U. C. 812 A. D. 59 the relation of the Roman Kalends to the Julian was that of equality. If April 30 Roman this year coincided with April 30 Julian, April 1 Roman must have coincided with April 1 Julian, March 1 Roman with March 1 Julian; and therefore (unless there were special reasons to suppose the contrary, of which we are not aware) February 1 Roman must have coincided with February 1 Julian, and January 1 Roman with January 1 Julian.

[e] Tacitus, Ann. xiv. 20: 23.

[f] Ibid. 23—26; xiii. 34—41. Dio, lxii. 19—23.

[g] Cf. our Dissertations on the Principles, &c. Vol. iv. 730. Table iii.

[h] lxi. 16.

[i] Supra, 125, note.

[k] De Geometria, vi. 194.

SECTION VIII.—*On the relation of the Roman to the Julian Kalends* A. D. 69. *Tybi* 17 *and December* 20.

In the code of laws which Cicero drew up for his imaginary polity *one* is *this:* Præter Idææ matris famulos, eosque justis diebus, ne quis stipem cogito[l]. It may be fairly inferred from this special exemption in their favour, that the worshippers of the Mater Idæa at Rome (of the Phrygian Cybele and Attes) in Cicero's time enjoyed a privilege, recognized in their case by the laws, or at least conceded and sanctioned by use and custom; whereby they were empowered to go about at stated times, collecting alms in the name of the proper objects of their worship. It would be in our power to confirm this inference by other testimonies, were this the proper place for doing so. And in fact after the solemn reception of the Mater Idæa herself at Rome U. C. 550 B. C. 204[m], this privilege could not fail to be conceded to them.

Cicero, it appears, in his own Republic would have this privilege to be restricted to these votaries of Cybele and Attes; whose proper name was Galli: but it does not follow that the same kind of privilege might not have been enjoyed in his time at Rome by the worshippers of other foreign divinities, as well as by those of Cybele and Attes. His own law proves nothing except that in *his* opinion it ought to be conceded to none but these; who certainly had the best right to it: and must have enjoyed it for the longest time. But there can be no doubt that long before Cicero's time the worship of the Egyptian Isis also had been introduced into Rome[n]; and that long before his time and still in his time, whether with or without the express sanction of the law, yet from prescription and custom, the votaries of Isis were in the habit of going about even in Rome, collecting alms or pence in her name.

The proper denomination of these worshippers of Isis was that of Isiaci in general; but they appear to have borne also that of Pastophori and Pausarii in particular[o]. A college of Pastophori was incorporated by Sulla B. C. 80[p]; and the first temple of Isis was founded with his sanction in the

[l] De Legibus, ii. 9, 22: cf. 16, 44. and Minucius Felix, xxiv. 4.
[m] See Vol iii. 45.
Cf. Vol. iii. 266.
Cf. our Fasti Catholici, ii. 456.
Ibid. 449, note: 453 sqq.

Campus Martius: from which too she derived her oldest and most appropriate title among the Romans; that of Regina Campestris or Regina in Campo. From this time forward the Isiaci may be considered to have acquired something like a legal right to go about in public, if not in Rome itself, yet certainly *extra Pomœrium*, and in the suburbs: proofs of which are extant in the contemporary authors. But whatsoever may have been the case in this respect between the time of Sulla and that of Caius or Claudius; no privilege or permission of that kind could have been any longer denied them even by the laws, from the time when the worship of Isis and Osiris itself was formally established at Rome, under those two emperors in particular: and that, as we shewed in our former work [p], was A. D. 40 and 41.

To such of these votaries of any foreign superstition as thus went about at stated times among themselves, the Greeks gave the name of Μηναγυρται; by which name however they appear to have generally intended the worshippers of Cybele and Attes in particular: though *their* denomination, taken from the practice in question, was that of Μητραγυρται; that is, of those who went about collecting alms in the name of the Mater Deum. The name of Μηναγυρται, applied to such persons in general, implies that they went about in this manner *every month;* and probably *once* only, or on some *one* stated day, every month: and that would seem to be what Cicero intended when he spoke of restricting the exercise of this privilege, even by those to whom he was willing to concede it, only upon *stated days;* most probably on some one day in every month *.

The days on which the Μητραγυρται or Galli were accustomed to go about in public have not been handed down in terms, in any instance of the fact of which we are aware; and yet from reasons *a priori*, (i. e. considerations derived from the objects of their worship, and from the particular nature of their ritual,) and also from certain facts which are

* Consequently only 12 days in the year in all. And that seems to be implied in his second allusion to this privilege, De Legg. ii. 16, 44: Stipem sustulimus nisi eam quam *ad paucos dies* propriam Idææ Matris excipimus.

[p] Cf. our Fasti Catholici, ii. 449 note: 453 sqq.

upon record, there would be good reason to conclude that there was ONE day in every month, which they were accustomed to devote to this service above any other; and a day which may very probably be divined. But these are questions which belong to the Phrygian calendar; and must be reserved for the present.

With regard however to the similar rule of the Isiaci; there is little or no uncertainty. The day consecrated to Isis among the Egyptians from time immemorial was the 17th of the equable month[q]. And of the actual observance of this day among the Isiaci out of Egypt and abroad we produced some actual proofs in our former work[q]; one of which, it is necessary for our present purpose, that we should again refer to here. It is upon record, as we shewed[q], that Domitian the son of Vespasian escaped with his life on the day after the storming of the Capitol, or the day before the death of Vitellius, A. D. 69, by assuming the disguise of an Isiacus, and mingling with the rest of her followers; whose characteristic rites and ceremonies were even then going on in public: and as it would seem with impunity and unmolested, notwithstanding the actual contest which was raging in the streets of Rome at the time. The Roman date of the storming of the Capitol (when also it was burnt to the ground) was December 19: that of the death of Vitellius was December 21. The Roman date of the escape of Domitian between the two must consequently have been December 20.

Now A. D. 69 corresponded to Nab. 817; and Tybi 17 Nab. 817 fell on December 20 A. D. 69. But Tybi 17 Nab. 817, it appears, fell also on December 20 Roman U. C. 822. If so December 20 Roman U. C. 822 and December 20 Julian A. D. 69 must have been the same. Consequently Dec. 1 Roman and Dec. 1 Julian must have been the same; and therefore we may presume the Kalends of January U. C. 822 and January 1 A. D. 69 must have been the same; and the Kalends of January U. C. 823 and January 1 A. D. 70 would also be the same.

We have thus established the fact that A. D. 43 the Kalends of January must have been at par with January 1; yet that from A. D. 49 to 52 at least the Kalends of January

[q] Cf. our Fasti Catholici, iii. 160.

must have been at par with January 2: and notwithstanding that A.D. 59 the Kalends of January must again have been at par with January 1; and that A. D. 69 and A. D. 70 this same relation of equality must have been still existing between them. It is clear then that between A. D. 43 and A. D. 70 they must both have risen from January 1 to January 2, and also have dropt again from January 2 to January 1. It is time therefore to exhibit the scheme of the actual administration of the calendar, from one of these terms to the other; or so much of it as may answer our purpose in order to shew how each of these effects in its proper order of time was brought about.

Julian Calendar at Rome A. D. 43 *to* A. D. 57.

A. D.	Sum of days.	Kalendæ Januariæ.	Nundinal Character	Nundinal Epact
43	366	Jan. 1	C	6
*44	365	Jan. 2	8	5
45	365	1	3	5
46	366	1	6	6
47	365	2	8	5
*48	366	Jan. 2	3	6
49	365	2	5	5
50	365	2	8	5
51	365	2	3	5
*52	366	Jan. 2	6	6
53	365	2	8	5
54	365	2	3	5
55	365	2	6	5
*56	365	Jan. 2	1	5
57	365	Jan. 1	4	5

The calendar then having been brought into this state, U.C. 810 A. D. 57, that the Kalends of January were falling on January 1, the Nundinal character of the year was 4, and the year itself was the first year of the cycle of leap-year; it was competent to go on, subject to the proper law of the Julian Correction, yet without any future ground of apprehension on the score of the Nundinal Incidence, for 18 years; that is, down to A. D. 75. And all this time the Kalends of January would continue attached to January 1; and the

agreement between the Julian year, in the sense of the Roman of the time being, and the Julian year properly so called, from A. D. 57 to A. D. 75 would be complete in all respects: as in fact it appears to have been. The first year likely to call for any precaution against the Nundinal Incidence would be the 19th from this time, A. D. 75: and *in* that year, as we hope to shew by and by, the regular administration of the calendar *does* appear to have been again interfered with.

SECTION IX.—*On the relation of the Roman to the Julian Kalends* A. D. 76 *and* 77. *Testimony of Pliny the elder.*

The administration of the calendar at Rome being supposed to have gone on regularly from A. D. 57 to A. D. 75, the Nundinal character of A. D. 75 in the due course of things must have been found to be 6; and the year being the third year of the cycle of leap-year, if it was to be treated as a common year according to the proper law of the cycle, the epact would be 5, and the character of the next year, A. D. 76, would be unity: i. e. the Nundinal day in the regular course of the cycle would fall on the Kalends of January U. C. 829 A. D. 76.

If it was considered desirable to prevent that, the readiest and most obvious means would appear to be the same which were employed for a similar purpose, A. D. 19–22; i. e. to make both A. D. 75 the third year of the cycle, and A. D. 77 the first year, leap-years, yet to retain the regular leap-year A. D. 76 notwithstanding. By this expedient the Nundinal character of A. D. 78, the second year of the cycle of leap-year, would be rendered 4, exactly as that of A. D. 22, under similar circumstances, had been before; and the calendar would be brought into a condition to go on 22 years, (from A. D. 78 to A. D. 100,) in conformity to the proper law of the Julian Correction, with nothing to apprehend on the score of the Nundinal Incidence.

Julian Calendar at Rome, A.D. 75 to 78.

A. D.	Sum of days.	Kalendæ Januariæ.	Nundinal Character	Nundinal Epact
75	366	Jan. 1	6	6
*76	366	Jan. 2	8	6
77	366	Jan. 2	2	6
78	365	Jan. 3	4	5

The precedent of A. D. 19–22 in fact seems to have been scrupulously followed on this occasion. The Kalends of January U. C. 829 would thus begin to fall on January 2. U. C. 830 they would still fall on January 2; and to the end of that year the relation of the Roman to the Julian Kalends would be that of 1 to 2. But U. C. 831 they would begin to fall on January 3; and, if no further irregularity was admitted into the calendar for the next 22 years, the actual relation of the Roman to the Julian Kalends all through the year, from U. C. 831 A. D. 78 to U. C. 852 A. D. 99 at least, would be such that the first day of every Roman month would fall on the third of the corresponding Julian month. Let us therefore proceed to inquire whether any dates are on record for the interval in question, which will shew that to have been the case.

Pliny the elder has an observation relating to the herb called myosotis (i. e. mousear); which shews that in the opinion of the Egyptians it was possessed of a peculiar virtue, that of being a preservative against sore eyes: subject however to a certain condition; viz. that of its being used for this purpose on one day of the year only, and the first thing in the morning, before the party so using it should have said any thing: Tradunt Ægyptii mensis quem Thiatin vocant die xxvii, fere in Augustum mensem incurrente, si quis hujus herbæ succo inungatur mane priusquam loquatur, non lippiturum eo anno[r].

It must be self-evident that the name of the month here specified is a corruption for that of Thoth. The act itself,

[r] H. N. xxvii. 80. Cf. Dioscorides, ii. 214.

supposed to be done in this month and on a certain day in this month, yet so as to be a safeguard against a particular affection for the *whole* of the year, is sufficient to imply that it was done, or prescribed to be done, at the *beginning* of the year; and therefore in the *first* month of the year. Accordingly the Chiffletian MS. in this instance instead of Thiatis reads Toti for the name of the month; and Toti comes nearer to the actual name of the first month in the Egyptian calendar, (Tot[s] or Thot,) than Thoth itself: which was its name only in the Alexandrine Greek. The same MS. reads the 28th day of this month, instead of the 27th; and it is probably more correct in that instance also: though all the other MSS. of Pliny agree in the *recepta lectio* of the day of the month as well as of the name of the month.

Now this date of the 28th of Thoth is defined or described by Pliny as falling in the Roman month of August. It could not therefore have been intended by him of the 28th of the Alexandrine Thoth, which never fell in any Roman or Julian month but September; nor, in the Roman calendar as the same with the Julian, on any day but the 25th or the 26th of September. It must therefore have been meant by him of the 28th of the equable Thoth; and the equable calendar would thus be recognized as still the proper Egyptian calendar in Pliny's time, 100 years and upwards later than the date of the Alexandrine correction: proof of which fact indeed we have already seen supra[t], in the equable date of Mecheir 6 compared with the Ides of January A. D. 48–51.

It is observable however that even the incidence of this day in the Roman month of August for Pliny's time is qualified by the adverb *fere: Fere* in Augustum mensem incurrente: the natural inference from which observation appears to us to be that it was falling in reality either very near the beginning or very near the end of August. A given equable date must fall for 120 years at least within the limits of a given Julian month of 30 or 31 days; and we do not see how any one who was aware of that fact, (in other words of the relation of the equable to the Julian year in general,) could have spoken of a given equable date as *about* falling in a given Julian month, were it not only just beginning to fall

[s] See our Fasti Catholici, iv 187, 188. [t] Page 140.

within it, or just ceasing to fall within it. Of these two hypotheses, and with respect to the month Thoth in particular, the former only could be the case in Pliny's time. We infer then from this observation of his that the 28th of Thoth, when he was writing, was falling just at the end of the Roman August. Now the Historia Naturalis of Pliny was written A. D. 76 and A. D. 77. In each of those years the first of Thoth at midnight was falling on August 4 at midnight; and, if the Roman Kalends of August at the same point of time were falling on August 2, the coincidence implied by his language would strictly hold good: viz. that the 28th of Thoth for the time being was actually falling in the Roman August, but had only just begun to do so.

A. D. 76.	Nab. 824.	U. C. 829.	
August 4 mid.	Thoth 1 mid.	Kalends of Aug.	August 2 mid.
+ 27	+ 27	+ 29	+ 29
August 31 mid.	Thoth 28 mid.	iii Kal. Sept.	August 31 mid.

The 28th of Thoth then in either of these years would *fall* on August 30 Roman = August 31 Julian. This note of time must belong to one of these years; either to A. D. 76 after August 4, or to A. D. 77 before August 4. We see then with how much propriety this particular equable date might be described at that time as falling *about* in the month of August, or *commonly* in the month of August, Roman. The same thing indeed might have been said, if the Kalends of August U. C. 829 A. D. 76 or U. C. 830 A. D. 77 had fallen on the first of August; and therefore this coincidence does not necessarily prove that in either of those years they were actually falling on the second of August. But it is consistent with that state of the case; and with the actual arrangements of our calendar for these two years*.

* The true time of the composition of the Historia Naturalis was a point which we had occasion to investigate in our Work on the Principles and Arrangement of an Harmony of the Gospels[1]. The date which we have just considered bears on that question. For if this work of Pliny's was under his hand any time between A. D. 72 and 75, during all which

[1] Vol. iv. 82 sqq. Cf. ii. 75.

time the Roman Kalends were at par with the Julian, he could not have spoken of the 28th of Thoth as falling in the month of August. Between Nab. 820 A. D. 72 and Nab. 823 A. D. 75, the 28th of Thoth was still falling on September 1.

But the actual date of the composition of this work was U. C. 829 and 830, A. D. 76 and 77; that of its publication was U. C. 830, the sixth consulship of Titus Cæsar, A. D. 77. We are told by Pliny the younger[2] that his uncle's rule was to resume his studies every year at the Vulcanalia, August 23 Roman. There is a date in the second book[3], which (if the numbers may be depended on) is decisive that he did not begin to write it until after the Kalends of January U. C. 829, the fifth consulship of Titus; that is, until after January 2 A. D. 76: from which fact the most obvious inference is that agreeably to his rule, as declared by his nephew, he actually set about it at or after the Vulcanalia, (August 23 Roman, August 24 Julian,) the same year. Nor, if we consider how diligent and indefatigable he was, will it be considered any objection that notwithstanding the magnitude of the work the whole of it on this supposition must have been completed between the Vulcanalia A. D. 76 and the Vulcanalia A. D. 77 (when Titus was septies consul), or at least the Kalends of January A. D. 78. It is the last of his works enumerated by his nephew[4]: and, as he died himself soon after the Vulcanalia A. D. 79, even that is not surprising. The majority of its dates clearly determine it[1] to U. C. 830 A. D. 77: and that may be assumed as its true age.

On this principle the Kalends of the Roman months all through the time taken up in the composition of this work were falling on the second of the corresponding Julian months. It follows consequently that all the dates which occur in it, and must be considered to have proceeded from the author, and to have been taken from the calendar as it was standing at the time, are to be understood accordingly; i. e. as one day higher in the Julian notation in every instance than they appear to be in the Roman. We will endeavour to illustrate this by some actual cases of the kind.

i. The date of the Flatus Favonii and of the beginning of spring. This date in the Historia Naturalis is regularly the vi Idus Februarias; Feb. 8 Roman, and, on the principle in question, Feb. 9 Julian: vi Idus Februarii (Favonius flare debet)[5]—Non ante Favonii afflatum .... hoc est a. d. vi Idus Februarias[6]—Ver ergo aperit navigantibus maria.... is dies sextus est ante Februarias Idus[7]—Flare incipiente vento Favonio circiter fere sextum Idus Februarias[8]. We are strongly inclined to believe that this date, which is a cardinal one in the natural year of Pliny, and is always referred to absolutely in this manner, was taken by him from the Parapegma of Cæsar; and Cæsar's date for it may be inferred from Ptolemy, De Apparentiis: in which, opposite to Mecheir 16, February 10 Julian, we find the entry Καίσαρι καὶ Μητροδώρῳ ἔαρος ἀρχή. Ζέφυρος ἄρχεται πνεῖν. And with respect to these dates of Cæsar which occur in this work of

2 Epp. iii. 5. 3 ii. 22. 4 iii. 5: cf. v. 8: vi. 16. Suetonius, Plinii Vita.
5 H. N. xviii. 65. § 2. p. 208. 6 Ibid. xv. 4. 7 Ibid. ii. 47. 8 Ibid. xvi. 39.

Ptolemy's, it is to be considered that, all through the interval from A. D. 136 to A. D. 160 (within which it was certainly compiled), the Roman Kalends were one day behind the Julian; and such a date as Feb. 10, obtained from the corresponding Roman date under such circumstances, was in reality Feb. 9. In another instance (xviii. 59) Pliny characterises this natural term as the middle point between the winter solstice and the vernal equinox: Inter Brumam (viii Kalendas Januarias) et Æquinoctium die xlv flatus Favonii vernum tempus. Assume the viii Kalendas Januarias in his time as Dec. 26 and the viii Kalendas Martias as March 26, and the interval from the former to the latter being 90 days Feb. 9 is just 45 days after the one, and just 45 before the other.

The third of the testimonies to this date[9] produced above more fully stated is as follows: Ver ergo aperit navigantibus maria; cujus in principio Favonii hibernum molliunt cœlum sole Aquarii xxv obtinente partem. is dies sextus est ante Februarias Idus. competit ferme et hoc omnibus quos deinde ponam, per singulas interkalationes uno die anticipantibus, rursumque lustro sequenti ordinem servantibus. If Pliny's date of the Flatus Favonii was truly the 9th of February, his date of the ingress into Aquarius, on that supposition, must have been January 16. We are not aware that the date of this ingress in particular is given by him any where else in terms, except in his Parapegma or calendar[10]; and there it appears to be attached to the xvi Kal. Feb. January 17 Roman *. The 25th day in Aquarius from this date of the ingress would be Feb. 10 Roman; two days later than Feb. 8 Roman, Pliny's date of the Flatus Favonii, and of the 25th of Aquarius also. We must suppose then that this was really Cæsar's date of that ingress: and not Pliny's. The ingress into Capricorn, according to Cæsar, was December 18 Roman; and Capricorn being reckoned at 30 days that into Aquarius would be January 17 Roman †. It appears to us then that in this particular instance, and for the sake of the most cardinal term in his natural year, Pliny corrected the dates of Cæsar; assuming the ingress into Aquarius Jan. 15 Roman instead of Jan. 17, and the xxvth day in Aquarius, (the Flatus Favonii and Veris principium,) Feb. 8 Roman instead of Feb. 10: the vi Idus Feb. instead of the iv Idus Feb.

The rest of this observation of his, Competit ferme et hoc omnibus (sc. diebus) quos deinde ponam; per singulas interkalationes uno die anticipantibus, rursumque lustro sequenti ordinem servantibus—shews the im-

* We say it *appears* to be so attached; for it is not actually so attached, only by implication. Pliny's words are, Item ad vi Idus Januarii ejusdem Delphini vespertino occasu continui dies hiemant Italiæ; *et quum sol in Aquarium sentiatur transire:* quod fere xvi Kalendas stella regia appellata Tuberoni in pectore Leonis occidit matutino. Nothing is here expressly attached to the xvi Kal. Febr. but the cosmical setting of Cor Leonis. It is implied however that even that coincided with the passage of the sun into Aquarius.

† Such is the date of Sol in Aquarium in the Fasti of Ovid (i. 651) Jan. 17 Roman.

9 H. N. ii. 47. 10 Ibid. xviii. 64.

portance which he attached to this particular term. It appears to us that this remark of his has never been understood. Its meaning is this. The standard of the mean natural year assumed in the Correction of Cæsar, and recognized even by Pliny himself[9], was absolutely the same as that of the mean Julian; six hours of mean solar time more than 365 days perpetually. In the natural year this epact of six hours could never be neglected; it must be taken into account every year. In the Julian year it must lie by and stand over, until it accumulated to a day; and it must then be taken into account all at once in the shape of an entire day. It follows that a natural term like this of the xxv° in Aquarius, of the Flatus Favonii, and of the Veris principium, attached to a given Julian term, Feb. 9 for instance at midnight, in the first year of the cycle of leap-year, must advance upon it by the extent of the epact, six hours, for four years in succession, until it got to Feb. 10 at midnight: but at the end of the fourth year, and by virtue of the extra day taken into account in the Julian year also at the end of the fourth year, it must again be drawn back from Feb. 10 at midnight to Feb. 9 at midnight. This is what Pliny means by Per singulas interkalationes uno die anticipantibus; the cumulative effect of four successive intercalations of six hours in the natural year, but not in the civil: and by Rursumque lustro sequenti ordinem servantibus, the rectification of this excess, and the restoration of the natural and the civil year to their proper relation to each other, at the beginning of every fresh cycle of the leap-year. The *singulæ interkalationes* can be referred to nothing but the natural year: and the *lustro sequenti* to nothing but the civil.

ii. Another important term in Pliny's natural year was the Fidiculæ occasus matutinus, the beginning of the autumnal quarter. Cæsar's date of that phenomenon, according to him, was the iii Idus Augusti, August 11 Roman; his own is the vi Idus Augusti, August 8 Roman. Cæsari,... iii Idus (Aug.) Fidicula occasu suo autumnum inchoat, uti is adnotat: sed ut vera ratio id fieri invenit sextō Idus ejusdem[10]— Inter Solstitium et Æquinoctium autumni Fidiculæ occasus autumnum inchoans die xlvi[11]: which reckoned from June 24 Roman gives the Fidiculæ occasus August 8 Roman—Nunc Fidiculam occidere a. d. vi Idus Augusti servatur[12]. There was consequently three days' difference apparently between Cæsar's date of this phenomenon August 11 Roman, and Pliny's August 8 Roman. Now the sidereal dates in the Parapegma of Cæsar appear to have been laid down very carefully and very exactly[13]; and yet Pliny opposes his own date in this instance to Cæsar's as the Vera ratio to that which was not the true. It is impossible however that August 8 could be the true date of the phenomenon in Pliny's time if August 11 was so in Cæsar's time. How then shall we reconcile these things to each other, that August 11 Roman might be the true date in Cæsar's time and yet August 8 Roman the true date in Pliny's time? They are easily reconciled, if August 11 Roman in Cæsar's time really meant August 9, and August 8 Roman

9 See supra, 62, note.
10 H. N. xviii. 68. 2.
11 Ibid. 59, p. 194.
12 Ibid. 69. § 4.
13 See supra, p. 69, note.

in Pliny's time meant August 9 also. And indeed, if both were true, each for its proper time, both must have denoted August 9. Between Cæsar's time and Pliny's the sidereal year must have gained 18 hours on the Julian; but as it had not gained a day, a true sidereal date, like August 9, for Cæsar's time might still be true for Pliny's time: and might still accord with observation in his time almost as truly as in Cæsar's.

iii. Among the other observations recorded in Pliny's Parapegma, several occur expressly referred to the climate of Attica[14]. And these are found in terms in the calendar of Geminus, ascribed to Euctemon. We may conclude then that Pliny took them from Euctemon. They are not numerous, and therefore we will extract them from their respective calendars, and compare them together.

Calendar of Pliny[14].	Calendar of Euctemon in Geminus[15].
Atticæ. iii Non. April. April 3. Vergiliæ vespere occultantur.	Krion 10. April 2. Εὐκτήμονι πλειάδες ἑσπέριοι κρύπτονται.
Atticæ. xvi Kal. Mai. April 16. Suculæ occidunt vesperi.	Krion 23. April 15. Εὐκτήμονι ὑάδες κρύπτονται.
Bœotiæ et Atticæ. vi Kal. Mai. Apr. 26. Canis vesperi occultatur.	Tauron 2. April 25. Εὐκτήμονι κύων κρύπτεται.
Atticæ. iii Non. Jul. July 5. Orion totus exoritur.	Karkinon 13. July 9. Εὐκτήμονι Ὡρίων ὅλος ἐπιτέλλει.
Atticæ. x Kal. Aug. *July 23. Aquila matutino occidit.	Karkinon 28. *July 24. Εὐκτήμονι ἀετὸς ἑῷος δύνει.
Atticæ. Prid. Id. Aug. *August 12. Equus oriens vesperi significat.	Leonton 17. *August 13. Εὐκτήμονι.... ἵππος ἐπιτέλλει.
Atticæ. Non. Sep. *Sep. 5. Arcturus matutino exoritur. Sagitta occidit mane.	Parthenon 10. *Sep. 6. Εὐκτήμονι.... ἐπιτέλλει δὲ καὶ Ἀρκτοῦρος, καὶ ὀϊστὸς δύεται ὄρθρου.
Atticæ. vi Non. Oct. *Oct. 2. Corona exoritur mane.	Zygon 7. *Oct. 3. Εὐκτήμονι στέφανος ἀνατέλλει.
Atticæ. iii Kal. Jan. *Dec. 30. Aquila vesperi occidit.	Ægon 7. *Dec. 31. Εὐκτήμονι ἀετὸς ἑσπέριος δύεται.

[14] Cf. xviii. 66. § 1—74: 64. 1—66. 1: cf. 27. [15] Uranologium, P. 69 and 64.

In five out of these nine cases of entries, the same in each calendar, the Roman date in Pliny is one day behind the Julian date in Euctemon: and that is just what it ought to be, if the Roman Kalends in Pliny's time were one day higher than the Julian. In the first four cases indeed this proportion is not perceptible: and that may authorize us to suspect some error in the reading of those numbers either in his text or in that of Geminus. There can be no question concerning this, in the fourth instance; in which his text at present has July 5 Roman, and Geminus' has July 9 Julian.

He has two dates in the month of September, iv Kal. Oct. Sept, 28 Roman, Capella matutino exoritur; and iii Kal. Oct. Sept. 29 Roman, Hœdi exoriuntur: on which he observes, Consentiunt (quod est rarum) Philippus, Callippus, Dositheus, Parmeniscus, Conon, Criton, Democritus, Eudoxus. Among these authorities none appears in Geminus in connection with these observations but Eudoxus, Zygon 4 Sept. 30: Εὐδόξῳ αἰξ ἀκρόνυχος ἐπιτέλλει: and his date Sept. 30 would be the same with Pliny's of Sept. 29. Euctemon's name does not appear among them; and yet it is observable that in Geminus Zygon 3 Sept. 29 we find Εὐκτήμονι ἔριφοι ἐπιτέλλουσιν ἑσπέριοι. These entries in Pliny should stand Hœdi exoriuntur opposite to Sept. 28—which would agree with Euctemon; and Capella matutino exoritur opposite to Sept. 29, which would agree with Eudoxus.

And here it is very necessary that we should advert to the observation which Pliny premises to this calendar of his[16]; Primum omnium dierum ipsorum anni solisque motus prope inexplicabilis ratio est: ad ccclxv adjiciunt etiamnum interkalarios diei noctisque quadrantes: ita fit ut tradi non possint certa siderum tempora. This observation appears to recognize the regular observance of the leap-day in his time, and yet to speak of it as a source of confusion between the civil and the sidereal calendar; and that would be so contrary to the truth that we cannot suppose it was really his meaning. The reason assigned by Ptolemy for giving his dates De Apparentiis in terms of the Alexandrine rather than of the equable calendar[17] was just the reverse of this; viz. because the leap-day taken into account in that calendar once in four years kept the civil and the sidereal dates in harmony with each other for the longest time of all. Pliny had a very correct idea of the use of the leap-day in restoring the relation of the civil year to the natural at stated times: Nam cum trecentis sexaginta et fere sex partibus orbis solis ex circuitu ejus patere appareat circulum[18]—Deinde solis meatum esse partium quidem trecentarum sexaginta (360°): sed, ut observatio umbrarum ejus redeat ad notas, quinos annis dies adjici superque partem quartam diei. quam ob caussam quinto anno unus interkalaris dies additur, ut temporum ratio solis itineri congruat[19]. He never then could have intended to speak of the *regular* use of the cycle of the leap-day in the civil year as

16 H. N. xviii. 57. 184.
17 Supra, p. 152.
18 H. N. ii. 21.
19 Ibid. 6. p. 207.

SECTION X. — *On the relation of the Roman to the Julian Kalends* A. D. 79. *Eruption of Mount Vesuvius, and death of Pliny the elder.*

The first eruption of Mount Vesuvius, of which there is any account in history, took place in the reign of the Roman emperor Titus. The year in which it happened may be collected from Dio or Xiphilinus. The death of Vespasian June 23 A. D. 79 and the accession of Titus are mentioned in their proper order of time[u]; and the next year[w], A. D. 80: and the year after that[x], A. D. 81, when Titus died on September 13[y]. The reign of Titus is thus circumscribed between June 23 A. D. 79 and September 13 A. D. 81; and in the same year as his accession, the first of his reign, the eruption is recorded[z]. The year of this event is thus de-

any source of confusion, in comparing it either with the natural year or with the sidereal perpetually. But with respect to an *irregular* use of that cycle the case would be very different. And in our opinion *that* is the true explanation of his remark; viz. that though the leap-day continued to be observed at Rome it was not regularly observed; it was liable to irregularities which made it a source of embarrassment and perplexity, in comparing the civil dates of natural or sidereal phenomena with those of nature: and rendered them sometimes earlier, sometimes later, than they ought to be and they would otherwise be. Neither has this passage yet been properly understood. Every one however must allow that this is most probably its meaning; that it cannot be supposed to mean any thing else without calling in question the judgment and common sense and even the consistency of Pliny himself: and that it is wonderfully illustrated by the actual administration of the Julian Correction from the first down to his time, as soon as that is properly understood.

Lastly, the following occurs of the year in which it was written: Sunt qui certissimum veris indicium arbitrentur ob infirmitatem animalis papilionis proventum. id eo ipso anno quum commentaremur hæc notatum est, proventum eorum ter repetito frigore extinctum, advenasque volucres ad vi Kalendas Februarias spem veris adtulisse, mox sævissima hieme conflictatas esse[20]. We should understand this of vi Kal. Feb. January 27 Roman, January 28 Julian, A. D. 76. The moon was new that year on January 24: and that might have something to do with the severe cold which set in January 28.

[20] H. N. xviii. 57.

[u] lxvi. 17: 18: cf. Suetonius, Vespasian, xxiv.

[w] Ibid. 24.

[x] Ibid. 26.

[y] Cf. Suetonius, Titus, xi.

[z] Dio, lxvi. 21–23: cf. Suetonius, Titus, viii. 9. Martial, iv. 43. Orosius, vii. 9.

termined to A. D. 79. On what day in this year also it must have happened remains to be considered.

The most particular account of the eruption is contained in two of the epistles of Pliny the younger [a], addressed to Tacitus; who being engaged at this time in the composition of his history, and desiring to transmit to posterity an authentic account both of the circumstances of the eruption and of those of the death of Pliny the elder, which was a consequence of it, had requested his nephew Pliny the younger to supply him with all the information relating to each of these events, which he might be able to furnish from his own observation and recollection.

At the time of the eruption Pliny the elder was commanding the Roman fleet; and stationed at Misenum. He was there when the eruption took place: Erat Miseni classemque imperio præsens regebat [b]. The first appearance of the eruption, as observed in that quarter, is thus described and dated [b]: Nono Kalend. Septembris hora diei fere septima mater mea (Pliny's sister) indicat ei apparere nubem inusitata et magnitudine et specie. The readings of this date are various; Nono Kalend. hora—Kalend. Novemb.—Nonum Kal. hora —Novemb. Kal. hora—iii Non. Novembr.—all occur, as well as the date in the text: from which it seems only an obvious inference that the true reading of the text in this instance must have been early involved in more or less of uncertainty.

It is however to be observed that, (as Pliny proceeds to relate,) when his uncle was made aware of this phenomenon at the *seventh* hour of the day, he was studying (reading or writing), having previously taken his usual exercise in the sun. In this reading of the *seventh* hour there is no variation. Now there is another letter of the younger Pliny's [c], which gives an account both of his uncle's literary labours, and also of his habits, or rule of life, all through the year. It was his custom Lucubrare incipere, (i. e. to resume his literary pursuits after the interruptions of the summer,) a Vulcanalibus; i. e. from and after the x Kalendas Septembres, August 23 Roman, every year.

If so, it is to be presumed that he would not be found em-

[a] vi. 16: 20. [b] Ibid. 16. [c] iii. 5.

ployed in studying any time in the summer until after the Vulcanalia. Now when his attention was directed to the eruption he was *studying:* Usus ille sole mox frigidam gustaverat jacens; studebatque [d]: and his habits being so regular and methodical, (as from his nephew's account of them [c] they appear to have been,) this circumstance, in our opinion, alone is competent to discredit the common reading of the date of the eruption, ix Kalendas Septembres; which would be August 24, only the day after the Vulcanalia: and therefore the very first day, on which, according to his rule, he must have resumed his lucubrations. Had that been the case, his nephew would scarcely have failed to mention it; particularly as he lost his life on the morning of the next day.

But further, it seems to have been his rule [c] to begin and to prosecute his literary labours at a different time of the day in summer and in winter respectively: Lucubrare a Vulcanalibus incipiebat non auspicandi caussa sed studendi; æstate statim a nocte multa, hieme vero ab hora septima vel cum tardissime octava, sæpe sexta ..... post cibum sæpe, (quem interdiu levem et facilem veterum more sumebat,) æstate si quid otii jacebat in sole: liber legebatur:...post solem plerumque frigida lavabatur, deinde gustabat dormiebatque minimum. mox quasi alio die studebat in cœnæ tempus. And his supper in summer was over before nightfall: Surgebat æstate a cœna luce, hieme intra primam noctis.

It seems then that after the resumption of his studies at the Vulcanalia, (which was strictly still in the summer,) his custom was to prosecute them daily without interruption; and so to interpose the hours of refreshment of every kind that, while the summer was still continuing, about the middle of the day he would take a turn or two in the sun; use the cold bath; make a light repast; and then lie down for a short siesta: and after all that would set to work with his books until supper time. Now this was just what he had been doing, when the eruption was first pointed out to him: Usus ille sole mox frigidam gustaverat jacens; studebatque: from which, we think, it follows that the time of the eruption must have been still in the summer; and that Pliny had

[d] vi. 16. [c] iii. 5.

been doing previously what he was accustomed to do only in the summer: especially as the exact time, when his attention was directed to the phenomenon of the eruption, and when he was still lying down and studying, was the *seventh* hour of the day. And that being the case, not only the common reading of the day in question but the various readings above alluded to are excluded by the circumstances of his situation and of his employment at the time; the former, as incompatible with his rule of resuming his studies at the Vulcanalia, the latter, as too late in the year to be consistent with his habits, and with what he was accustomed to do only in the summer.

Here then it is necessary to take into account the testimony of Dio Cassius to the time of the year at which the eruption actually happened[e]: Ἐν δὲ τῇ Καμπανίᾳ φοβερά τινα καὶ θαυμαστὰ συνηνέχθη· πῦρ γὰρ μέγα κατ' αὐτὸ τὸ φθινόπωρον ἐξαπιναίως ἤφθη: and that by this he meant the eruption of Mount Vesuvius appears from what follows: Τὸ γὰρ ὄρος τὸ Βέσβιον κ', τ. λ.

The eruption is thus dated Κατ' αὐτὸ τὸ φθινόπωρον: and though the proper sense of φθινόπωρον in Greek, as opposed to μετόπωρον, is to denote the latter part of the summer quarter, between the Fidiculæ occasus (August 8 or 11 Roman) and the autumnal equinox, yet it may also be understood of the autumnal equinox itself; and, where it is used (as it is here) to define a point of time rather than to mark out a period, it can scarcely with propriety be understood of any thing else. Κατ' αὐτὸ τὸ φθινόπωρον at least is more definite than Κατὰ τὸ φθινόπωρον or Περὶ τὸ φθινόπωρον would have been; yet either of these would have denoted the same season of the year in general: had that been all which it was intended in this instance to specify.

It appears also from the same testimony[f] that each of the two cities, Herculaneum and Pompeii, which were overwhelmed on this occasion, was surprised by the eruption under similar, and yet very peculiar, circumstances; viz. when the people in each were assembled in the theatre, witnessing some shows or games: Καὶ προσέτι καὶ πόλεις δύο ὅλας τό τε Ἡρκουλάνεον καὶ τοὺς Πομπηΐους, ἐν θεάτρῳ τοῦ ὁμίλου

[e] lxvi. 21. [f] lxvi. 23.

αὐτῆς καθημένου*· κατέχωσε. The eruption itself according to Pliny[g] lasted four days; his uncle lost his life on the morning of the second day, and his body was found on the day but one after, i. e. on the fourth day: and then the eruption was over. But this surprise of the two cities and this overwhelming of both was no doubt one of the very first effects of the eruption; and an event of the first day.

If then the fact asserted by Dio was true, and the people in each were actually assembled in the theatre previously, and were actually surprised in that situation; it implies that in each of these cities, *on* the same day and *at* the same time of the day, spectacles of some kind were going on: and that coincidence would be a strong ground of inference that such spectacles or such celebrities (whatsoever they were) could have been nothing peculiar to either of these cities in contradistinction to the other; and if nothing peculiar to either of them, that they must probably have been going on in other cities in the neighbourhood at the same time also. In other words, it is strongly implied by this coincidence that games were going on just at that time as matter of course every where.

Now there is nothing to distinguish this date of ix Kalendas Septembres, August 24, in the extant remains of the Julian calendar†. The Vulcanalia, the x Kalendas Septembres, August 23, might have been commemorated by games of some kind; and in the reign of Macrinus at least actually appear to have been so[h]. Nor are any games or festivities marked for the ix Kal. Novembres. There were Ludi in Circo Kal. Nov. and the Ludi Plebeii on the Prid. Non. Novembres[i]: but though the former too occurs among the various readings in Pliny, yet we have seen that it must have been excluded by the circumstances of the case.

Let it be supposed however that instead of the ix Kalendas

* The use of this word implies that they were sitting there as spectators at the time. Consequently that games were going on.

† Postridie Vulcanalia, August 24, was a dies religiosus; being one of the days of the *Mundus patens*.

[g] Epp. vi. 16.
[h] Dio, lxxviii. 25: Thesaurus Temp.
[i] Antiatine calendar: cf. the Amiternine.

Septembres the true reading was the ix Kalendas Octobres, September 23 Roman. That would have been the birthday of Augustus; and the birthday of Augustus was celebrated by games from the first[k]: and it continued to be so celebrated down to A. D. 355 the date of the Constantian calendar. There can be little question at least that it must still have been kept as an holiday in the reign of Titus; not only at Rome, but in all Italy too. It is therefore, in our opinion, the most probable conclusion of all, and the most consistent with the fact, thus attested by Dio, of what was going on in these two cities at the time, and with the circumstances pointed out *suprâ* relating to the habits and employments of the elder Pliny, that the actual date of the eruption, in the course of which he lost his life, was the ix Kalendas Octobres, September 23 Roman A. D. 79.

This conclusion then being taken along with the other, inferred from Dio, that it broke-out also Κατ' αὐτὸ τὸ φθινόπωρον, in the sense of the autumnal equinox; we collect from both together that A. D. 79 U. C. 832 the ix Kalendas Octobres, September 23 Roman, the anniversary of the birthday of Augustus, coincided with the autumnal equinox. This conclusion is greatly confirmed by the fact that, while September 23 Roman U.C. 832 necessarily fell on September 25 Julian A. D. 79, September 25 Julian A. D. 79 was actually the date of the autumnal equinox; which being calculated from our Tables for the meridian of Rome is found to have fallen September 25 at 4 h. 51 m. 18·9 sec. from midnight: and, if the difference of our Tables and Delambre's is taken into account, one or two hours later.

It is a singular circumstance that in neither of the letters of Pliny, one of which gives an account of what happened to his uncle after he left Misenum to repair to Stabiæ[l], and the other of what befell himself and his mother, both left at Misenum[m], is there any allusion to the moon: and yet there was a moon ten or eleven days old September 25 A. D. 79. But if the darkness produced by the eruption was great enough to eclipse the light of the sun for three or four days, *a fortiori* it would extinguish that of the moon. It is another singular coincidence that September 29, at noon on the fifth day after

[k] Maffæan, Capranic, Pincian calendar. [l] vi. 16. [m] vi. 20.

the eruption, this moon was eclipsed. But Pliny's account in each of his epistles stops short on the fourth day, September 28; when daylight was first restored and his uncle's body was found.

SECTION XI.—*On the relation of the Roman to the Julian Kalends* A. D. 78. *Testimony of Josephus.*

The defeat of Cestius Gallus the Roman governor of Syria in the first year of the Jewish war, A. D. 66, is dated by Josephus on the 8th of Dius in the xiith year of Nero. The circumstances of that event have been considered in our Dissertations on the Principles and Arrangement of an Harmony of the Gospels[n]; and should the opportunity ever arrive of treating of the Syro-Macedonian calendar of Josephus, (which is in fact the same with that which we have exhibited in our Prolegomena[o],) we may have occasion to consider them again, and still more at large, in connection with that part of our subject.

There can be no doubt that the Julian date which corresponded to this lunar one of Dius or Marchesvan 8 A. D. 66 was October 15. The date of the accession of Nero was iii Idus Octobres, October 13 Roman, U. C. 807 * A. D. 54. If then October 13 Roman U. C. 819 coincided with October 13 Julian A. D. 66; the date of the defeat of Cestius Gallus, Dius 8 October 15, that same year in strictness fell in the xiiith, not in the xiith of Nero. It is capable of proof too, as we hope to see by and by, that Josephus, as a general rule, reckoned the years of Nero from the 21st of Tisri or Hyperberetæus in the Lunar calendar of his time; and on that principle also Dius 8 A. D. 66 should have been dated in his xiiith year, not in his xiith.

The difference indeed between October 13 and October 15

* Seneca, Opp. iv. 373, De Morte Claudii Cæsaris, i. § 1: Quid actum sit in cœlo ante diem tertium Idus Octobris Asinio Marcello Acilio Aviola Coss..... volo memoriæ tradere— Cap. ii. § 2: Puto magis intelligi si dixero mensis erat October, dies tertius Idus Octobris: horam.... tamen inter sextam et septimam erat. Tacitus, Ann. xii. 69. U. C. 807 A. D. 54 (cf. xii. 64): Tunc medio diei tertium ante Idus Octobres, &c.: cf. Suetonius, Claudius, xlv. 3: Nero, viii. 1. Dio, lx. 34? lxi. 3.

[n] Vol. i. 422–426.

[o] Page 1–84: i–xcii.

amounts only to two days; and Josephus' exactness, it may be said, in such statements as these is not to be strictly insisted on. But this date of Dius 8 A. D. 66 was on every account an important one; and it was as likely *a priori* to be carefully considered as any which occurs in the whole history of the war. It has been shewn in our Dissertations[p] that the history of the war could not have been finished and published before A. D. 77 or 78. In either of those years the Kalends of October were falling on October 3; and therefore October 13 Roman on October 15 Julian. We should account for the statement of Josephus, if we may suppose him to have taken the lunar date of Dius 8 from the Lunar calendar of the time being A.D.66; and to have compared it with October 13 Roman, the stated date of the years of Nero, in the Roman calendar A. D. 77 or 78 also: in either of which he would find it absolutely the same with the latter. We should account for it likewise by supposing him to have taken this date of Dius 8 from the Lunar calendar A. D. 77; in which year it fell on October 13 Julian, October 11 Roman: consequently two days before October 13 Roman, October 15 Julian, which would be considered the beginning of the xiiith of Nero.

There is another date in Josephus' history of the war, which has occasioned much perplexity; that of the death of Vitellius, the third day of the Macedonian Apellæus, according to the reading of his text at present. The true date of this event was December 21 Roman U. C. 822; which was then entirely the same with December 21 Julian A. D. 69. The third of Apellæus (understood of the third of Tebeth) A. D. 69 fell on December 4; understood of the third of Chisleu, fell on November 5: both much too early for the true date of the death of Vitellius, December 21. And though by correcting the text of Josephus, and reading the 20th of Apellæus (in the sense of Tebeth) instead of the third (κ′ instead of γ′), we certainly should get the true date, December 21; the correction after all would be purely conjectural: and would rest not upon critical grounds but solely on the supposed necessity of the case.

Now though Josephus is a very valuable writer, to whom

p Vol. ii. 65. Diss. xv: iv. 66. App. Diss. xvi: cf. Prolegomena, p. 60.

history and chronology are under great obligations, it is impossible to deny that he is free from mistakes; some of them of a very extraordinary kind and little to have been expected[q]. We shall perhaps see by and by that for some reason or other he must have reckoned A. D. 69 the last year of Nero; in which case, it would be only consistent to have assigned the reigns of Otho and Vitellius to A. D. 70: and therefore to have dated the death of Vitellius A. D. 70 instead of A. D. 69.

If we may only suppose that he actually did so date it, the difficulty connected with his date of the death, Apellæus or Tebeth 3, is removed at once. A. D. 70 the third of Apellæus actually fell on December 23; and A. D. 77 or 78, as before, December 21 Roman also did the same: so that on this principle the traditionary or historical date of the death of Vitellius, December 21 Roman, and Tebeth or Apellæus 3 would appear to have been altogether the same. We propose this therefore as the probable explanation of this very embarrassing date; which as it stands in the text of Josephus, and as referred to A. D. 69, has given chronologers so much trouble. Our readers however must judge of its probability for themselves. But as we have ventured to say that Josephus appears to have reckoned A. D. 69, instead of A. D. 68, the last year of Nero; in order to shew the grounds of this observation, and at the same time to proceed systematically, we consider it worth our while to take a general view of the rule which he seems to have followed in calculating and stating the lengths of the reigns from Augustus to Vitellius: particularly as it will be found to confirm both the Lunar calendar of our Prolegomena and the Roman in the sense of the Julian one of this present work, as far as we have yet proceeded with it.

i. Augustus. There is one statement of the length of this reign in the Antiquities[r]: Ἑπτὰ καὶ πεντήκοντα τῆς ἀρχῆς ἔτη, πρὸς οἷς μῆνες ἓξ ἡμέραιν δυοῖν πλείονες. There is another in the War[s]: Ἔτεσιν ἑπτὰ καὶ πεντήκοντα, πρὸς δὲ μησὶν ἓξ ἡμέραις δυοῖν. These agree together; and each makes it 57 y. 6 m. 2 days. We must therefore conclude that this is the length at which Josephus actually computed it. It differs however materially from that which is commonly assigned it; espe-

q Cf. our Dissertations, i. 312. r xviii. ii. 2. s ii. ix. 1.

cially in the fraction of the last year, the six months and the two days. The question is then in what manner it was obtained?

Now we are at liberty to assume that Josephus reckoned the beginning of the reign of Augustus from the death of Julius Cæsar. Yet Cæsar died March 15 Roman B. C. 44, and Augustus August 19 Roman A. D. 14; and the exact interval from the former of those dates to the latter must have been stated at 57 years five months four days: not, as Josephus makes the length of the reign of Augustus, at 57 years six months two days.

But let us suppose i. that March 15 Roman B. C. 44= March 13 Julian, and August 19 Roman A. D. 14=August 17 Julian; and that August 17 being reckoned the first day of the reign of Tiberius August 16 must have been reckoned the last of that of Augustus. ii. Entering the sacred calendar, A. D. 14, (Period vi. Cycle ii. 5,) we find Elul or Gorpiæus 1 falling on August 14, and Elul or Gorpiæus 3 on August 16; and reckoning six months complete back from Elul or Gorpiæus 1 August 14 A. D. 14 we come to Adar or Dystrus 1 February 18 the same year: which, on this principle, must have been reckoned by Josephus the first day of the 58th year of Augustus. And going back three cycles of 19 years, (57 years exactly,) from Adar or Dystrus 1 A. D. 14 we get to Adar or Dystrus 1 Feb. 19 B. C. 44; which on the same principle must have been reckoned the beginning of his first year*. Lastly, from Adar or Dystrus 1, Feb. 19 B. C. 44, to

* The 23rd of this month Adar or Dystrus B. C. 44, March 13 Julian, was the actual lunar date of the death of Julius Cæsar; so that Josephus by reckoning from the first of Adar or Dystrus, instead of the 23rd, as the epoch of the reign of Augustus, must have treated this fraction of the month as equivalent to a month complete.

With regard to the length which he assigns to the reign of Julius Cæsar, in the Antiquities (xiv. xi. 1) it is stated at three years and six months; in the War (i. xi. 1.) at three years seven months. These statements would agree together, if each was reckoned *from* Elul or Gorpiæus 1 (August 29) B. C. 48; but the former *to* Adar or Dystrus 1 February 19 B. C. 44, the latter *to* Nisan or Xanthicus 1 March 21; a month later. But why was the reign of Cæsar reckoned from August 29 B. C. 48? Possibly because that was the nearest day to the actual date of his second dictatorship after Pharsalia, (see Vol. iii. 460: 500,) and in terms of the integral lunar month.

Elul or Gorpiæus 3, August 16 A.D. 14, the interval in calendar lunar time was exactly 57 years six months two days; as Josephus reckoned the length of the reign of Augustus to have been.

ii. Tiberius. Ἡμέρας τρεῖς καὶ πέντε μῆνας πρὸς ἐνιαυτοῖν δυοῖν καὶ εἴκοσι [t]—Ἔτη δύο πρὸς τοῖς εἴκοσι καὶ τρεῖς ἡμέρας ἐπὶ μησὶν ἓξ [u]. In these statements the years and the days agree, the months differ. There is no doubt that *seven* months, not *six* and much less *five*, are necessary to make up the true account of the fraction of the last year of Tiberius, from the day of the death of Augustus in one year to that of his own in another. We must therefore first correct the numbers in the War by reading Ἐπὶ μησὶν ἑπτὰ instead of Ἐπὶ μησὶν ἓξ (ζ′ not ϛ′); and then amend those in the Antiquities by means of these. On this principle the precise length of the reign of Tiberius according to Josephus must have been 22 years 7 months 3 days.

He began to reign August 19 Roman August 17 Julian Elul or Gorpiæus 3 A.D. 14. He died March 16 Roman and Julian A.D. 37; which day in the sacred calendar corresponded to Nisan or Xanthicus 11 Period vi. Cycle iii. 9; and the last day of his reign, on the same principle as that of the last of Augustus, would be reckoned Nisan or Xanthicus 10 March 15. The 23d year of his reign dated from August 17 A.D. 14 would begin August 17 A.D. 36; in the sacred calendar, Period vi Cycle iii. 8, Elul or Gorpiæus 7. And from Elul or Gorpiæus 7 A.D. 36 to Nisan or Xanthicus 10 A.D. 37 the interval in lunar time would be just seven months three days. The fractional part of the last year of Tiberius might thus be computed at seven months three days; and its entire length at 22 years, 7 months, 3 days.

iii. Caius. Τέταρτον ἐνιαυτὸν ..... λείποντα τεσσάρων μηνῶν [w] —Ἔτη τρία καὶ μῆνας ὀκτώ [x]. These statements agree in making the length of this reign three years eight months; yet its actual length, from March 16 A.D. 37 to January 24 A.D. 41, was three years, ten months, eight days. In the fraction of the last year there is consequently an inaccuracy,

[t] Ant. xviii. vi. 10.
[u] Bell. ii. ix. 5.
[w] Ant. xix. ii. 5.
[x] Bell. ii. xi. 1.

which we cannot resolve into any error of reading in the text of Josephus at present. It was most probably the effect of some misapprehension of his own, howsoever produced; and in our opinion it is to be explained by the fact of his having reckoned the beginning of the reign of Caius from that time A. D. 37 when the news of his accession was received in Judæa; i. e. at, or about, Pentecost, Sivan 6 that year [y]. The actual date of the death of Caius, January 24 A. D. 41, answered to Sebat or Peritius 3 that year; and from the first of Sivan A. D. 37 to the first of Sebat A. D. 41 the interval in lunar time would be precisely three years eight months. On this principle then nothing would be more natural than to reckon the fraction of the last year of Caius at 8 months, from Sivan or Dæsius 1 A. D. 40 to Sebat or Peritius 1 A. D. 41.

iv. Claudius. Ἔτη δεκατρία, μῆνας ὀκτὼ, πρὸς ἡμέραις εἴκοσι [z] —Ἔτεσι τρισὶ καὶ δέκα πρὸς δὲ μησὶν ὀκτὼ καὶ εἴκοσιν ἡμέραις [a]. These statements agree. We may therefore conclude that each is genuine; and that Josephus actually reckoned the length of the reign of Claudius at 13 years, 8 months, 20 days. It may be assumed that he began to reign on January 24 A. D. 41; though in strictness it was two days later, January 26 [b]: and he died on the iii Idus Octobres, A. D. 54. A. D. 41 the Roman and the Julian calendar were at par; A. D. 54 the Roman Kalends were falling on the second of the Julian months: and October 13 Roman = October 14 Julian. The exact length of the reign of Claudius from one of its terms to the other, in Julian time, must have been stated at 13 years, 8 months, 20 days; October 14 the day of his death being reckoned the first day of the reign of Nero, according to Josephus' rule in the preceding instances. By the sacred calendar, Period vi. iv. 7, October 13 A. D. 54 answered to Tisri or Hyperberetæus 23: and the first year of Claudius in terms of this calendar being dated Sebat or Peritius 3, its length from that day to Tisri or Hyperberetæus 23 in lunar time would be 13 years, 8 months, 20 days exactly.

v. Nero. Τρισκαίδεκα βασιλεύσας ἔτη καὶ ἡμέρας ὀκτώ [c]. In

[y] Cf. our Dissertations, i. 349, 350.
[z] Ant. xx. viii. 1.
[a] Bell. ii. xii. 8.
[b] Suetonius, Claudius, x. 3–7: xi. 1.
[c] Bell. iv. ix. 2.

this statement there is doubtless an omission, affecting the number of months in the last year of Nero; if not an error also, affecting the number of odd days besides. For he began to reign October 13 Roman A. D. 54; and he died June 9 Roman A. D. 68: from one of which terms to the other the interval in calendar Roman time rightly stated must have been represented at 13 years, 7 months, 27 days. And the length of Nero's reign is found actually so represented [d]. It differs however so materially from the preceding statement of it according to Josephus, that we may well hesitate to correct the latter, whether right or wrong in itself, by proposing any alteration in the reading of his text at present; lest we should thereby change something which actually proceeded from himself. In our opinion no part of this statement can be safely corrected, except that which concerns the number of months over and above the 13th year of Nero. We may perhaps assume that Josephus reckoned the entire length of the reign of Nero at 13 years, 8 months, and 8 days (μῆνας η′ as well as ἡμέρας η′); but that is all.

The lunar date of the initia of Nero A. D. 54 having been Tisri 24; the 9th of June, the last day of his reign, referred to its true year A. D. 68 in the lunar calendar, Period vi. Cycle v. 2, must have been Sivan 20; 13 years, 8 months *minus* 4 days, not *plus* 8 days, from Tisri 24 A. D. 54. But let us be allowed to suppose that for some reason or other Josephus reckoned the last year of Nero to have been A. D. 69. The 9th of June A. D. 69 in the Sacred calendar, Period vi. Cycle v. 3, fell on Thamuz 2; to which day, from Tisri 24 the interval in calendar lunar time would actually be 8 months, 8 days.

vi. Galba. Μετὰ μῆνας ἑπτὰ καὶ ἴσας ἡμέρας [e]: which gives the length of the reign of Galba 7 months 7 days: and that would be its exact length, reckoned in Julian calendar time, from June 9 in one year to January 15 in the next; on which day of the month he was killed. In like manner the reign of Otho is reckoned at three months two days, Ἡμέρας δύο καὶ τρεῖς μῆνας [f]: the actual interval, by the calendar, from January 15 to April 17 the day of the death of Otho

[d] Dissertations on the Principles, &c. iv. 71, 72 note. [e] Bell. iv. ix. 2.
[f] Ibid. 9.

also. The reign of Vitellius is stated at 8 months 5 days, Μῆνας ὀκτὼ καὶ ἡμέρας πέντε [g]: and that too would be strictly correct of the interval, according to the calendar, from April 17 inclusive to December 21 inclusive.

In these three instances it must be evident that the lengths of the reigns in question are reckoned in solar or Julian time; and therefore that Josephus did not think proper to reduce any of these dates to the lunar calendar: as he appears to have done with all before them. What the reason of this distinction may have been is left to conjecture. It might be ultimately due to his having included all these short reigns in that of Nero; which as we have seen he made to come to an end A. D. 69 not A. D. 68.

SECTION XII.—*On the relation of the Roman to the Julian Kalends* A. D. 96. *Date of the death of Domitian.*

Among the omens supposed to have preceded the death of Domitian, Suetonius mentions the following[h]: Pridie quam periret cum oblatos tuberes servari jussisset in crastinum adjecit, Si modo uti licuerit: et conversus ad proximos affirmavit fore ut sequenti die Luna se in Aquario cruentaret, factumque aliquod exsisteret de quo loquerentur homines per terrarum orbem. It should be observed, in explanation of this statement, that according to Suetonius also[i] Domitian knew of or suspected the day of his own death: Annum diemque ultimum vitæ jam pridem suspectum habebat; horam etiam, necnon et genus, mortis. adolescentulo Chaldæi cuncta prædixerant. And this *hour* is afterwards particularized as the *fifth* of the day [k].

Now the actual day of his death in the calendar of the time being was xiv Kalendas Octobres, September 18 Roman[l]. Consequently the conversation just alluded to must have passed September 17 Roman. The question is, What day *that* was in the Julian calendar? September 17 or September 19?

The truth of the anecdote just related, we apprehend, may be taken for granted on the authority of Suetonius. Let it

[g] Bell. iv. xi. 4.
[h] Vita, xvi. 1.
[i] Ibid. xiv. 2.
[k] Ibid. 4–6.
[l] Ibid. xvii. 5. Cf. Dio, lxvii. 18: lxvi. 18. 26.

then be particularly attended to that, according to this statement, Domitian expected the moon *se cruentare*, (to *embloody* itself, to assume the *appearance of blood*,) in such and such a sign. What then could that mean, except that he expected it to be *eclipsed?* Such being the appearance which the moon almost invariably exhibits in an eclipse, especially a total eclipse; that of being turned into blood.

If *this* was the real meaning of his observation, (and we do not see what other construction could possibly be put upon it,) it follows that, whether the day of his death was that of a lunar eclipse or not, it must have been that of the full of the moon at least. If our calendar therefore is right in its indications for this year, and September 18 U. C. 849, the Roman date of his death, actually denoted September 20 Julian A. D. 96; September 20 Julian must have been the date of the full moon of September, for the meridian of Rome, A. D. 96. We have put that to the test of calculation; and we have found accordingly

		h.	m.	s.	
The mean full moon,	Sept. 20	17	29	7	mean t. Greenwich
	Sept. 20	18	18	56	mean t. Rome.

		h.	m.	s.	
The true full moon,	Sept. 20	19	21	21·7	mean t. Greenwich
	Sept. 20	20	11	10·7	mean t. Rome.

We consider this coincidence a very critical confirmation of our calendar, not only for this particular year, but for those which precede it also; and we are persuaded that every unprejudiced person must think so too. As to the eclipse expected by Domitian at this full moon also; it appears from Pingré that, though there was none *de facto* September 20 A. D. 96, there was one at the next full moon, October 20 at 6 A. M. for the meridian of Paris as he has calculated it: and probably in reality somewhat later. And this coincidence should be allowed its weight, in confirming the construction which we put on the observation attributed to Domitian, about the moon's embruing itself in blood; as only another way of saying it would be eclipsed: especially if for some reason or other he expected the eclipse to have happened in September which actually happened in October; of

which expectation, and on what principle it is probably to be explained, our opinion is stated in the note subjoined *.

* The principal difficulty connected with this anecdote will no doubt appear to be that Domitian supposed the moon would be in Aquarius, the next day, Sept. 18 Roman Sept. 20 Julian; which was not possible. We have calculated the new moon of September, A. D. 96, and found

	h.	m.	s.	
The mean new moon, Sept. 5	23	7	6	mean t. Greenwich
Sept. 5	23	56	55	mean t. Rome.

	h.	m.	s.	
The true new moon, Sept. 5	10	45	41	mean t. Greenwich
Sept. 5	11	35	30	mean t. Rome.

And at the time of the mean conjunction the moon's mean longitude was 163° 41′ 39″·7. We have therefore

	°	′	″		h.	m.	s.
M L′ =	163	41	39·7	Sept. 5	23	56	55
Add 15 days' mean motion,	197	38	45·4	— 15			
M L′ =	1	20	25·1	Sep. 20	23	56	55.

That is, 31° 20′ 25″ beyond the limits of the sign of Aquarius 330°.

It is clear then that such a calculation as that which Domitian appears to have made could not be explained by the true mean or actual lunar momenta of the time; and yet without any prejudice to the fact that Sept. 20, the next day, might be expected to be the full of the moon, and even the date of a lunar eclipse: for that would not depend on the sign in which the moon might be expected to be at the time. It might be known and truly known, (and there could not be any mistake about that,) that the moon would be at the full the next day; and it might nevertheless be wrongly expected, for some reason or other, that the moon at the same time would be in Aquarius.

It is therefore a curious question how it might have happened that Domitian should have expected an eclipse of the moon Sept. 20 this year; and an eclipse in Aquarius. In our opinion even *this* may be explained, if we may suppose him to have calculated the eclipse in question for himself by means of the Chaldaïc Saros; applying the Saros indeed correctly, but assuming a wrong base or ecliptic epoch. He was himself addicted to astrology, and was very likely to have known something of the Saros; and not to have been altogether unacquainted with its use and application.

The scheme of the Saros which appears to have been known to the learned Romans more particularly was the Chaldaïc, of the epoch of August 11 B. C. 794; digested in cycles and periods of the Exeligmus, 54 equable years 46 days perpetually. See Vol. i. 132: and cf. our Fasti Catholici, iv. 100.

Now there is a lunar eclipse in Pingré's Tables, April 8 at 11. 45 A. M. for the meridian of Paris, B. C. 769: and, as eclipses often recur at corre-

sponding new or full moons in two years one after another, an eclipse of the moon April 8 B. C. 769 would be so far an argument *a priori* of one April 19 or 20 B. C. 770. None such indeed appears in Pingré for that year. And in fact we have satisfied ourselves that there could have been none in April that year. The full moon of April B. C. 770 however fell out as follows:

	h.	m.	s.	
Mean full moon, April 20	5	31	48	mean t. Greenwich
April 20	6	21	37	mean t. Rome

	h.	m.	s.	
True full moon, April 19	22	36	30·4	mean t. Greenwich
April 19	23	26	19·4	mean t. Rome.

And this comes so near to the point of midnight April 20, that we may assume it as the same with it. Let us be allowed then to suppose that this full moon April 20 at midnight for the meridian of Rome B. C. 770 was ecliptic; and therefore proper to be made the base of a series of cycles of the Saros in the form of the Exeligmus.

This period must be applied in equable annual and noctidiurnal time only. It was a period of 54 equable years 46 days complete. In 16 cycles of this period we should have

	y.	d.
54 × 16 equable years =	864	0
46 × 16 days = 736 days =	2	6
16 cycles of the Exeligmus =	866	6 days.

Now B. C. 770 corresponded to Æra Cyclica 3237; and the first of the Cyclical Thoth that year fell March 3 at midnight: the first of the Nabonassarian March 4 at midn. Consequently the 18th of the Nabonassarian Phaophi the same year fell April 20 at midn. The Nabonassarian date then of a succession of Exeligmi attached to this supposed ecliptic base of April 20 at midn. B. C. 770 would be Phaophi 18 at midn. Æra Cyc. 3237; but as this Nabonassarian term after B. C. 672 must necessarily drop to Phaophi 17 at midn. we may assume it as Phaophi 17 from the first.

We have then,

		Nabon.	
Æra Cyc.	3237	Lunar eclipse Phaophi	17 at mid.
16 Periods of the Exeligmus	+866		+6
Æra Cyc.	4103	Lunar eclipse Phaophi	23 at mid.

Æra Cyc. 4103 corresponded to Nab. 844; and Thoth 1 Nab. 844 at midn. fell on July 30 A. D. 96 at midn. and therefore Phaophi 23 at midn. fell on September 20 at midnight: on which day, as we have seen from calculation, there was actually a full moon, at 20 h. 11 m. 10·7 sec. mean time, for the meridian of Rome; and, had there really been an eclipse of the moon April 20 B. C. 770, on the principles of the Saros there must

have been one Sept. 20 A. D. 96. It is clear then that our calculations as far as we have yet proceeded cannot be in the wrong; and we have only to suppose that Domitian assumed and calculated as we have done to account for his expecting an eclipse, as well as a full moon, Sept. 20 A. D. 96.

But what are we to say to his expecting this eclipse in Aquarius? There were two forms of equable time, and always had been; the Cyclical and the Nabonassarian: and the difference between these A. D. 96 was $\mp$ 6 days. The Cyclical Thoth Æra Cyc. 4103 was falling August 5 at midn.; the Nabonassarian, Nab. 844, July 30 at midnight; so that Phaophi 23 of Nab. at this time was corresponding to Phaophi 17 Cyclical. There was an excess of 6 days exactly in the 16 cycles of the Exeligmus, by which it had been necessary to calculate from Æra Cyc. 3237 to Æra Cyc. 4103, or Nab. 844. Domitian appears to have supposed that those six days made all the difference between the Cyclical and the Nabonassarian date of the full moon of September in this instance respectively. He struck them therefore out of the account, and reckoned the sum of the 16 Exeligmi at 866 equable years exactly.

Now in 866 equable years the moon's mean motion, according to our Tables, and with our mean lunar standard (Introd. App. p. xxii. Table xiii), would be as follows, exclusive of entire circumferences.

800	Equable years	=	187°	44′	45″·168
60	..	=	203	4	51·388
6	..	=	56	18	29·139
866	..	=	87	8	5·695

Now by our calculation B. C. 770, we had

M L′, Æra Cyc. 3237 Phaophi 17 ... at mid.		=	199°	36′	21″·463
+	866	=	+87	8	5·695
M L′, Æra Cyc. 4103 Phaophi 17 at mid.		=	286	44	27·158
	Add 20 hours	=	10	58	49·200
M L′	Phaophi 17 at 20 h.	=	297	43	16·358

And this, according to the division in *Octavis partibus*, would be reckoned to be in the sixth degree of Aquarius. The reader therefore will now see that by proceeding in this manner, or in some manner analogous to this, it was possible for Domitian to have come to the conclusion that the moon would be eclipsed on this occasion in the sign of Aquarius. The conclusion was doubtless false; but if you grant the premises on which it is founded it would be true. It is regularly deducible from such premises; and that is all which we have to account for: viz. by what peculiar process of reasoning even such a conclusion as this might have been come to. We have nothing to do either with the truth of those assumptions, or with the truth of the inference from them, *per se*.

SECTION XIII.—*On the relation of the Roman to the Julian Kalends* A. D. 98. *Solar Eclipse at the death of Nerva.*

In the Epitome of Aurelius Victor it is asserted that there was an eclipse of the sun on the day of the death of Nerva[m]: Eoque die quo interiit solis defectio facta est. If the day of the death of Nerva was that of the accession of Trajan; this latter was January 27 Roman[n] A. D. 98: and, if there was actually a solar eclipse January 27 A. D. 98 also, then January 27 Roman U. C. 851 and January 27 A. D. 98 must have been altogether the same; and therefore the Kalends of January U. C. 851 and January 1 A. D. 98. And this would be totally at variance with the conclusion at which we have just arrived, that the Roman Kalends, only so recently before as the year of the death of Domitian U. C. 849 A. D. 96, were falling on the third of the Julian months.

But this coincidence of a solar eclipse January 27 A. D. 98 was physically impossible; since that day was not even the date of the new moon of January that year; but six or seven days later. The new moon of January A. D. 98 as our Lunar calendar, Period xiv. viii. 16, shews, fell on January 21 at midnight; and that is proved to be correct by the fact of the solar eclipse on March 21 at 3 P. M. for the meridian of Paris: the only solar eclipse which actually appears in the Tables of Pingrè for this year. The probable explanation of this misstatement of the Epitome is the fact that six years before, A. D. 92, as our calendar also shews, the new moon of January fell on January 27 at midnight: and *that* new moon was ecliptic. An eclipse of the sun appears in Pingrè January 27 A. D. 92, at 11 A. M. for the meridian of Paris. This assertion of the Epitome therefore will prove nothing of the actual relation of the Roman to the Julian Kalends A. D. 98. It may be right in supposing the fact of a solar eclipse some time or other on January 27; but it must be wrong in connecting that with U. C. 851 A. D. 98, the year of the death of Nerva: just as Victor himself in a former instance was right in supposing the fact of a lunar eclipse on the night of

[m] Nerva. [n] Suetonius, Domitianus, xvii. Dio, lxvii. 18; lxviii. 4.

Cf. Vol. ii. 320.

the appearance of the island of Thia, and wrong in connecting it with the sixth of Claudius, A. D. 46.

SECTION XIV.—*On the relation of the Roman to the Julian Kalends* A. D. 139. *Testimony of Censorinus; and rising of Sirius in Egypt*[o].

Ad Ægyptiorum vero annum magnum luna non pertinet, quem Græce κυνικὸν Latine Canicularem vocamus; propterea quod initium illius sumitur cum primo die ejus mensis quem vocant Ægyptii Thot Caniculæ sidus exoritur[p]—Nam ut a nostris ita ab Ægyptiis quidam anni in litteras relati sunt, ut quos Nabonnazaru nominant; quod a primo imperii ejus anno consurgunt: quorum hic D.CCCC.LXXXVI . . . sed horum initia semper a primo die mensis ejus sumuntur cui apud Ægyptios nomen est Thoth; quique hoc anno fuit ante diem VII Kal. Jul.: cum abhinc annos centum Imperatore Antonino Pio II et Bruttio Præsente Coss. iidem dies fuerint ante diem XII Kal. Augusti, quo tempore solet Canicula in Ægypto facere exortum. quare scire etiam licet anni illius magni, qui ut supra dictum est[p] et Solaris et Canicularis et Dei annus vocatur, nunc agi vertentem annum centesimum[q].

The year, of which Censorinus was here speaking as characterized by the consulate of Imp. Antoninus Pius II and Bruttius Præsens, was U. C. 892 of Varro A. D. 139; in the æra of Nabonassar, 887. Consequently it was the hundredth year before that in which he himself was writing this work; the consular year of M. Ulpius Crinitus and Proculus Pontianus, U. C. 991 A. D. 238 Nab. 986.

In this year of the æra of Nabonassar (986) as our General Tables shew the first of Thoth at midnight was falling on June 25 at midnight, A. D. 238; and, if June 25 Julian of this time was the same with June 25 Roman also, that would be correctly expressed in the Roman idiom by VII Kalendas Julias: and on this principle the VII Kalendas Julias at midnight U. C. 991, and June 25 at midnight A. D. 238, and Thoth 1 at midnight Nab. 986, would all denote one and the same day. In this particular instance therefore of Thoth 1

[o] Cf. Fasti Catholici, II. 460: III. 41. [p] Censorinus, De Die Natali, XVIII.
[q] Ibid. XXI.

Nab. 986, and of vii Kalendas Julias U. C. 991, as one the same with the other exactly, the text of Censorinus must be pronounced to be sound.

Nab. 887 again, as our Tables also shew, Thoth 1 at midnight coincided with July 20 at midnight A. D. 139. The year of the city which corresponded to either of these years being in any case the consular year of Antoninus Pius ii and Bruttius Præsens, U. C. 892; the question is simply with what Roman date in that year did Thoth 1. Nab. 887 and July 20 A. D. 139 coincide? According to the text of Censorinus, in this instance also, it was the xii Kalendas Augusti, July 21 Roman. Now the Julian date of Thoth 1 Nab. 887 being necessarily July 20 A. D. 139, and July 20 expressed according to the Roman style and idiom being necessarily the xiii Kalendas Augusti; for these two reasons learned men have commonly concluded that, as what Censorinus intended to express in this instance, in its proper Roman style and under its proper Roman date, must have been July 20, it must have been expressed accordingly by the xiii Kalendas Augusti, not by the xii Kalendas Augusti: and therefore that his text in its original and genuine state must have read the xiii Kalendas Augusti in this instance, and not the xii Kalendas Augusti. No one however has yet ventured to make this correction of his text; i.e. actually to substitute this new reading for the old one. Nor indeed could such a correction be defended on critical grounds, or on any principle but that of its supposed necessity *a priori*. None of the MSS. of Censorinus authorizes this change of the reading. Nor is there any more reason on critical grounds to suspect the soundness of this Roman date of the xii Kal. Aug. U. C. 892 for the first of Thoth Nab. 887, than that of the other, the vii Kal. Julias U. C. 991, for the first of Thoth Nab. 986.

The soundness of the reading then in this instance being admitted as much as in the other, and yet the matter of fact that the Julian date of Thoth 1 Nab. 887 must have been July 20 being also admitted; what was the natural and necessary inference from these two facts in conjunction? What but that the xii Kal. Augusti U. C. 892 was simply the proper Roman exponent at that time of Thoth 1 Nab. 887, and

therefore of July 20 A. D. 139? But this was an inference which the prejudices of the learned have never yet permitted them to draw; because it would have been implied in that admission that a given Roman date and a given Julian date at this time must have differed by a day, and that the Kalends of July in this very instance must have fallen on June 30 instead of July 1: a supposition which none of the learned hitherto has considered even to have been possible, much less real; especially at so late a point of time in the administration of the Julian Correction as A. D. 139. And yet this is after all the true explanation of the phenomenon; viz. that a sound and genuine reading of the text of Censorinus, which upon critical grounds must be pronounced unexceptionable and above suspicion, should nevertheless exhibit the anomaly of actually representing the 21st of July when it really intended to represent the 20th. The truth is that it always represented the 20th of July, but always through the 21st of July Roman; and at this particular time the 21st of July Roman was *de facto* the proper Roman exponent of the 20th of July. The Kalends of January, as our calendar shews, began to fall on December 31, A. D. 136; and continued to do so down to A. D. 159. Nor can the arrangements of our calendar for the whole of this period be changed or superseded in any manner. The state of the case then A. D. 139 U. C. 892 could not fail to be such as it might always have been collected to be from the simple and obvious construction of the text of Censorinus, considered as genuine. The Kalends of January were falling on December 31; and every Roman date all round the calendar was one day behind the corresponding Julian one. The Kalends of July were falling on June 30; and the 21st of July Roman was now the proper Roman exponent of July 20. In what manner then could it possibly have been expressed at this time, agreeably to the Roman idiom, but by xii Kalendas Augusti? And what would be the effect of correcting the text of Censorinus, and reading the xiii Kalendas Augusti instead of the xii Kalendas Augusti, but to make it assert that which was false? viz. that July 19 not July 20 A. D. 139 was the proper Julian exponent of Thoth 1 Nab. 887*.

* It is manifest that the question at issue in this instance is that of the

SECTION XV.—*On the relation of the Roman to the Julian Kalends* A. D. 146 *and* 147. i. *Testimony of Appian.*

Οὕτω μὲν δὴ Γάϊος Καῖσαρ ἐτελεύτησεν ἐν ἡμέραις αἷς καλοῦσιν Εἰδοῖς Μαρτίαις· Ἀνθεστηριῶνος μάλιστα μέσου[r]. The natural inference from these words is that in Appian's time, and when he was writing this part of his history, the Ides of March March 15 Roman, the date of the death of Julius Cæsar, coincided with the middle of Anthesterion; not necessarily indeed with the middle day of that month exactly, but with some day very near it: Ἀνθεστηριῶνος μάλιστα μέσου. The year of the death of Cæsar was of course B. C. 44. Let us assume that the year in which Appian was writing was B. C. 146 or 147.

In the vulgar Metonic calendar of the time being B. C. 44 corresponded to Period vi. 8 (the eighth year of the sixth Period of 76 years from the date of the Correction July 16 B. C. 432); and in that year of the period the date of the first of Anthesterion was February 25: and, as the 15th of Anthesterion in the 8th year of the cycle was exemtile, the πανσέληνον or true middle day of the month in such years was the 16th. The first of Anthesterion B. C. 44 falling on February 25 at midnight, the 16th = 15th would fall on March 11 at midnight: and the 19th = 18th on March 14 at midnight.

Appian has furnished us with some particulars of his own history[s]; from which it appears that he was a native of Ale-

proper Roman date of the *first* of Thoth Nab. 887; not that of any thing else, which might happen *per accidens* to be connected with the first of Thoth at the same point of time: such for instance as the stated date of the heliacal rising of Sirius, July 20. It did happen that this stated date of the rising of Sirius in Egypt in point of fact was coinciding with the first of Thoth Nab. 887; and Censorinus noticed that coincidence accordingly. But it is evident that what he was proposing in this second instance of Nab. 887 was the proper Roman date of the first of Thoth in that year of the æra; just as much as in the former, that of Nab. 986, it was the proper Roman date of Thoth 1 in that year too: this latter the vii Kalendas Julias U. C. 991, the former the xii Kalendas Augusti U. C. 892.

[r] Bell. Civ. ii. 149.

[s] Procem. 10–15: cf. Photius, Cod. 57. p. 17. 13–21.

xandria, that he was writing or living later than the rebellion of the Jews in Trajan's time[t], than Adrian's visit to Egypt[u], than his capture of Jerusalem[w]; in fact than his death[x]. It would seem that one king only was reigning in his time[y]; though he speaks of himself as having been employed in forensic suits before more than one of the reigning emperors[z], (which ascertains his profession as that of a lawyer or caussidicus,) and as having been promoted by them to the office of Ἐπίτροπος or fiscal procurator. Adrian and Antoninus Pius were probably those whom he meant; yet the remains of Fronto shew that he actually flourished under M. Aurelius and L. Verus also[a].

Now in one instance he reckons it to have been 700 years down to the consolidation of the empire under the first of the emperors[b]; and in another[c], to have been 200 more to his own time: which in a third instance[d] he expresses by 900 years in all. This gives his age U. C. 900 A. D. 147. At that time the Kalends of January were still falling on December 31; and therefore the Kalends of March, in the common years of the cycle of leap-year, on February 28, and the Ides of March, (March 15 Roman,) on March 14. And that, as we have seen, would be only three days later than Anthesterion 16=15 B. C. 44.

A work of such magnitude as this of Appian's must have taken up several years. But if the Preface was written at the end of the whole, it may be presumed that the whole had been finished by A. D. 147. The history of the civil wars, which has come down in the most perfect state of all, and contains the testimony above produced, from the nature of its subject and in conformity to the plan which the author appears to have laid down for the execution of the different parts of the entire work, would be among the last to be composed. It happens that A. D. 146–147 was exactly the same year of the Metonic cycle of 19 years as B. C. 45–44; and consequently it must have appeared at that time to be just the same thing to take the calendar date of Anthesterion 16

[t] B. C. ii. 90. [u] Ibid. 86.
[w] Syriaca, 50.
[x] B. C. i. 38: cf. vi. 38 Iberica.
[y] Ibid. v. 46.
[z] Procem. 15 Ἐπὶ τῶν βασιλέων.
[a] Frontonis Reliquiæ: Epp. xi. 28: cf. the Epp. Græcæ, Pars ii. 426–451: Epp. vi. vii: also Photius, Cod. loc. cit.
[b] Procem. 6. [c] Ib. 7. [d] Ib. 9.

from the vulgar Metonic cycle of A. D. 147 as from that of B. C. 44. In this year, (corresponding to Period viii. 46, Cycle xxxi. 8,) the first of Anthesterion would be found to be falling three days later than in B. C. 44; viz. on February 28: and therefore the 16th = 15th on March 14; and March 14 Julian that year was actually the same with March 15 Roman U. C. 900, March 14 Julian A. D. 147. It is evident under such circumstances with how much propriety it might be said at that time that the Ides of March fell *about* the middle of Anthesterion; Ἀνθεστηριῶνος μάλιστα μέσου: as nearly as possible on the middle day, if not actually upon it. It is evident too under the same circumstances that this date of the middle day of Anthesterion, as corresponding to the Ides of March, and at this time, must have been taken from the old Metonic or Lunar calendar of the Athenians. The Athenians had a solar calendar at this very time; but in no Type of that, much less in the first and genuine one of the time of Appian, could the middle of Anthesterion have been found falling in the month of March. This date of his therefore does as much to illustrate the old vulgar Metonic calendar of the time being as our Roman one also.

The Kalends of January then during all the time for which Appian could have been engaged in the composition of his Roman history falling on December 31, and every other Roman date relatively to the Julian of the same denomination falling in the same way; it is manifest that of the three calendar dates of the summer solstice, the ix Kal. the viii Kal. and the vii Kalendas Julias, June 23, June 24, and June 25 Roman respectively, the first would denote June 22 Julian: and June 22 Julian, as we have seen[e], was the actual date of the summer solstice in the Roman calendar which Appian recognized in a very remarkable manner, B. C. 36.

ii. *Inscription of the Pœanistæ.*

There is an inscription extant[f] the date of which is U. C. 899 A. D. 146; and, as its testimony appears to militate against the conclusion just established relating to the proportion of the Roman Kalends to the Julian at this very time, we do not consider that we should be dealing ingenu-

[e] Supra, p. 70.

[f] Gruter, cccxiv. 2.

ously with our readers, were we to pass it over unnoticed. We shall therefore produce it entire.

Ἡ ἱερὰ τάξις τῶν Παιανιστῶν
τῶν ἐν Ῥώμῃ Διὸς Ἡλίου
μεγάλου Σαράπιδος καὶ θεῶν
Σεβαστῶν ἐτείμησαν Ἔμβην
προφήτην. πατέρα τῆς προ
γεγραμμένης τάξεως προτο
μῇ μαρμαρινῇ. ἡ. ἀνατεθεῖσα
ἐν τῷ οἴκῳ τῶν Παια
νιστῶν τῇ πρ. Ā. Νωνῶν
Μαΐων. ἥ ἐστιν κατὰ
Ἀλεξανδρεῖς. Παχὼν ια
ἐπὶ Κουράτορος Μετελλίου
Ἀμπλιάτου πρεσβυτέρου
Σέξτῳ Ἐρουκίῳ Κλάρῳ
β̄. Κνέῳ. Κλαυδίῳ
Σεβήρῳ Κωσ.

These two were certainly consuls together U. C. 899 A. D. 146 g. And this being the year of the inscription, it appears from it that Pridie Nonas Maias, May 6 Roman, the same year corresponded to Pachon 11 in the Alexandrine calendar; the stated date of which day in the Alexandrine calendar, and in every year of the cycle of leap-year alike, was May 6 Julian h. If so, May 6 Roman U. C. 899 corresponded to May 6 Julian A. D. 146; and therefore January 1 Roman to January 1 Julian: and there could have been no difference between the Roman year U. C. 899 and the Julian A. D. 146.

We shall not attempt to evade this conclusion by calling in question either of the dates which appear in this inscription; either the Roman one of Pridie Nonas Maias or the Alexandrine one of Pachon 11. Yet notwithstanding that the inscription, we contend, proves nothing of the actual relation of the Roman to the Julian calendar U. C. 899 A. D. 146; and

g Cf. Historiæ Aug. SS. Severus, 1 Dio, lxxiv. 9.

h Cf. our Fasti Catholici, iv. 477.

simply for *this* reason: viz. that it is not an inscription properly so called; i. e. a contemporaneous record of something which had just been done, and the same year, but the copy of an inscription, some time or other made over again: i. e. it is the mere historical repetition, at a subsequent point of time, of an older matter of fact. The only date committed to this stone at first was the Roman one, Pridie Nonas Maias; the Alexandrine which appears along with it at present was a gloss upon it, subsequently introduced when the original was copied in this form. Those who are familiar with the ordinary style of double dates in inscriptions, when both are genuine and one is as old as the other, will readily acknowledge that the second of the two in this instance does not run in the usual terms in such cases; which would have required Τῇ πρὸ ᾱ Νωνῶν Μαΐων κατὰ Ἀλεξανδρεῖς Παχὼν ῑᾱ, not Ἥ ἐστιν κατὰ Ἀλεξανδρεῖς Παχὼν ῑᾱ. Moreover the solecism or false grammar, perceptible in that part which is expressed by Προτομῇ μαρμαρινῇ ἡ ἀνατεθεῖσα instead of τῇ ἀνατεθείσῃ, is a proof that even in its present state it is but the work of a bungler; of some careless or ignorant copyist. The most probable account of it is that it was merely a Greek version of a more ancient inscription in Latin; made at a time when May 6 Roman was actually coinciding with May 6 Julian, and therefore with the Alexandrine Pachon 11: for which reason, and because the inscription itself recorded the fact of something which had been done at Rome on May 6 Roman, in honour of the Pater or Principal of the Pæanistæ, (an order of the priests of Sarapis, the principal deity of Alexandria, and no doubt first introduced into Rome from Alexandria itself,) this Alexandrine date was added as a gloss to the Roman, to make it more intelligible to the Alexandrine Greeks. The Roman idiom appears in the use of the word Κουράτορος—Curatoris; and still more in the subscription, which records the names of the consuls, Σέξτῳ Ἐρυκίῳ Κλάρῳ β̄ Κνέῳ Κλαυδίῳ Σεβήρῳ Κωσ. which is good Latin but bad Greek. In short it is a Greek version of an older Latin inscription; made for the benefit of the Alexandrine Greeks. It proves nothing of the real meaning of the Roman date of the former, Pridie Nonas Maias U. C. 899.

SECTION XVI.—*On the relation of the Roman to the Julian Kalends A. D.* 186. *Solar Eclipse, December* 28 *A. D.* 186.

In Lampridius' life of Commodus a statement occurs relative to the *prodigies,* or remarkable events of an ominous character, which happened in the course of his reign[i]: Prodigia ejus imperio et publice et private hæc facta sunt. crinita stella apparuit:.....et ante bellum desertorum cœlum arsit: et repentina caligo ac tenebra in Circo Kalendis Januariis oborta: et ante lucem fuerant etiam incendiariæ aves ac diræ.

The Kalends of January long before the reign of Commodus had begun to be kept as an holiday, and long after his reign too continued to be observed in that capacity[k]; and very probably as one of the greatest in the calendar. The circumstances of the death of Commodus himself, which happened the night before the Kalends of January, (on which day he himself, but for that event, intended to have appeared in public as a gladiator,) are demonstrative that they were similarly observed in his reign. And among the other modes of commemorating them, and ushering in the new year, Ludi Circenses, Ludi in Circo, Spectacula of various kinds, exhibited in the Circus Maximus, or in any other of the buildings so called, were one. It seems then, from the preceding statement of Lampridius, that on some occasion of this kind in the reign of Commodus, when the people were assembled in the Circus on the Kalends of January witnessing such Ludi or Spectacula there, a darkness came on which is plainly supposed to have been something extraordinary; and therefore could not have been expected, nor yet be resolvable apparently into any natural cause, of which the spectators were aware at the time. Now a phenomenon of this kind might have been the effect of an eclipse of the sun; if it came on unawares, and towards the end of the day: and especially of an eclipse of considerable magnitude. And the occurrence of an eclipse unexpectedly at this period of the history of the

[i] Historiæ Aug. SS. Commodus, 16.

[k] See supra, page 134, note.

science of astronomy, and in the winter time, would be no very improbable supposition.

Now there is a solar eclipse in Pingré's Tables, December 28 A. D. 186, at 2.30 P. M. for the meridian of Paris; which, according to his description, must have been almost central for the latitude of Rome, and therefore very sensible in its effects at Rome. We have thought it worth while to calculate the new moon of December A. D. 186 from our own Tables, and we find

		h.	m.	s.	
The mean new moon	Dec. 28	15	17	17	mean t. Greenwich
	Dec. 28	16	7	6	mean t. Rome
The true new moon	Dec. 28	14	39	38·9	mean t. Greenwich
	Dec. 28	15	29	27·9	mean t. Rome.

The mean distance of the sun from the node at the same epoch was 4° 48′ 38″; and that was so much within the ecliptic limits as to leave no doubt that there must have been a very considerable eclipse of the sun on this day: and very possibly at Rome itself. It is manifest that for the meridian and latitude of Rome, where the shortest day is nine hours long, at this season of the year the precise time of this conjunction, (and therefore that of the middle of the eclipse, or nearly so,) must have been as nearly as possible an hour before sunset. It must have come on therefore in the day time properly so called; and at a time of the day too when the people might be sitting in the circus: for an eclipse of such magnitude would begin two hours before it attained to its maximum.

If then it came on unawares, if such a phenomenon as an eclipse of the sun was not expected at that particular time, and if the sky also was obscured by clouds at the same time (which would be very possible at the end of December), its specific effect might be to produce not a partial, but a total, obscuration of daylight, much before the usual time; an effect too which, once produced on that day and by such a cause and under such circumstances, would not be undone again the same day: for it must be evident that before an eclipse of such magnitude and of such proportionably long duration, (which was at its maximum only one hour before sunset at the end of December,) could be over in the natural

course of things the night itself must have set in. For all these reasons it might very well pass at the time for a very remarkable and very preternatural occurrence; and yet be nothing more after all than the natural effect of this eclipse, December 28 A. D. 186.

On this principle then the Kalends of January U. C. 940 must have been falling on December 28 A. D. 186. Nor is there any objection to such a coincidence *a priori;* for even before the reign of Commodus the Kalends of January had already got down from Dec. 31 to Dec. 30: and in the course of his reign they must have fallen as low as December 29 and December 28. It is certain that this very year, according to our calendar, they were actually falling on December 28; nor can that incidence be altered or dispensed with in any manner whatsoever: so that whether this eclipse of December 28 A. D. 186 was actually observed at Rome or not, or actually produced such an effect there as the darkness recorded by Lampridius or not, yet that it happened on the Kalends of January U. C. 940 would still be an unquestionable matter of fact. Let us therefore proceed to inquire whether the Kalends of January, which were the recorded date of this phenomenon in some year or other in the reign of Commodus, may not be determinable to the Kalends of January in his seventh year, U. C. 940 itself.

The events in question in the reign of Commodus were evidently enumerated by Lampridius in the order of their occurrence; at one time, and before any of the rest, the appearance of the comet: at another, and as next in the order of time, the appearance described by the heavens on fire, (most probably a shower of meteors, such as is liable to happen at the beginning of November,) followed by the war of the Deserters; and lastly this darkness on the Kalends of January: a later event than either of the preceding, yet followed itself by another phenomenon, the appearance of certain birds known by the name of *incendiariæ.* It is very important to attend strictly to the terms of this part of the account; Repentina caligo ac tenebra in Circo Kalendis Januariæ oborta, *et ante lucem fuerant etiam incendiariæ aves ac diræ:* the English of which is "A sudden darkness came on in the Circus on the Kalends of January; and before daylight

there had been also birds of ill omen, which portend fires." What can be inferred from this last observation, but that these birds had appeared before daylight on the day after this darkness in the Circus? Consequently, if that happened on the Kalends of January, that these birds were seen in the course of the same night; before daybreak at least on the second of January. The appearance of birds of ill omen, to which the name of *incendiariæ* is given, is often alluded to by Livy and Obsequens, among the other portents recorded by them; though what description of birds was meant by that name has not been explained *. But the name itself must imply that they were supposed to be ominous of fires; especially of fires which could not be considered to have happened in the ordinary course of things. If then the darkness really occurred on the Kalends of January U. C. 940, and these birds were seen between midnight and daylight on the morning of the iv Nonas Januarias, January 2 Roman, (the next day,) there must have been a fire at Rome U. C. 940, of which the appearance of these birds was ominous, and proved by the event to have been so..

The reign of Commodus began on the xvi Kalendas Apriles U. C. 933 March 17 Roman A. D. 180; and consequently U. C. 940, any time between the Kalends of January and the xvi Kal. Apriles, would still be in the seventh year of his reign. Now it is upon record that there were two great fires at Rome in the reign of Commodus; one near the end of his reign (in his xiith year, A. D. 191), which destroyed the temple of Vesta and the temple of Peace[l]; in which latter there was a public library: and that too perished on the same occasion, and along with it some of the works of Galen, as he tells us himself[m]. The other fire was much earlier in his reign; and the most observable circumstance about it is that the Paschal Chronicon[n] dates it in this very year, the consular

* Cf. Pliny, x. 17. Inauspicata est et incendiaria avis, propter quam sæpenumero lustratam urbem in Annalibus invenimus.... quæ sit avis ea nec reperitur nec traditur.

[l] Dio, lxxii. 24. Herodian, i. 44, 45. Eusebius, Chron. Arm. Lat. Pars ii. 293. Ad Ann. 2207. Jerome, Chron. Thes. Temp. Ol. 242. 3. Ad Ann. 2207. Orosius, vii. 16.

[m] Opp. xiii. 362 sqq. Περὶ Συνθ. κατὰ γένη, i. 1. Cf. ii. 215: xiv. 65. 12–66. 5: xv. 24. 11: xix. 19. 13 De Libb. Propriis, 2.

[n] i. 491, 492.

year of Crispinus and Ælianus, U. C. 940, the viith of Commodus itself, A. D. 187. Eusebius and Jerome differ only *per accidens* from this statement; since they both record the same occurrence in the 7th or 8th of Commodus: In Capitolium fulmina ruere: et magna incendia bibliothecam et alias quoque partes plurimas concremarunt[o]— In Capitolio fulmen ruit, et magna inflammatione facta bibliothecæ et vicinæ quoque ædes concrematæ[p]. It is very possible that the circumstances of two such events, *communis generis*, may have got confounded in these different allusions to them; but that there were two great fires at Rome in the reign of Commodus is clearly to be collected from these testimonies: and that, while the second could not long have preceded the end of his reign, the first must have happened as early as his seventh or eighth, (both of which would come either wholly or in part in this one year, U. C. 940 A. D. 187,) cannot be doubtful.

With regard to the war of the Deserters in the reign of Commodus, it derived that name from the ringleader in it, Maternus; whom Herodian describes as a soldier who had deserted—Τὴν τάξιν λιπών[q]: the scene of the disturbances excited by him being chiefly Gaul and Spain[q]. As to its date, Spartian tells us[r] that Pescennius Niger, (afterwards the rival of Severus for the imperial purple,) was employed in it under Severus: Et Pescennius quidem Severo eo tempore quo Lugdunensem provinciam regebat amicissimus fuit: nam ipse missus erat ad comprehendendos desertores qui innumeri Gallias tunc vexabant. in quo officio quod se honeste gessit jucundissimum fuit Severo, ita ut de eo ad Commodum Septimius referret.

Severus was born on the vi Idus Apriles (April 8 Roman) A. D. 146, according to Spartian[s]; April 11 Roman, according to Dio[t], the same year. He was designated Prætor at 32[u], A. D. 177; and then sent into Spain: consequently not before A. D. 178. After this he was appointed to the Legio iv Scythica, circa Massiliam[u], A. D. 179 or 180. Post hæc,

[o] Chron. Arm. Lat. Pars ii. 293 Ad Ann. 2203 or 2204.

[p] Jerome, Chron. Ol. 241. 4. Thes. Temp. Ad Ann. 2204.

[q] i. 30.

[r] Historiæ Aug. SS. Pescennius Niger, 3.

[s] Historiæ Aug. SS. Severus, 1.

[t] lxxvi. 17: lxxviii. 4. 5.

[u] Spartian, Severus, 3.

continues Spartian[u], Athenas petiit, studiorum sacrorumque caussa; not earlier, we may presume, than A. D. 181 or 182: and he stayed at Athens some time. Deinde Lugdunensem provinciam legatus accepit[w]. Consequently, it may be supposed, A. D. 182 or 183.

Now that these disturbances had been suppressed by A. D. 185, and that Severus was then again at Rome, appears from the fact that he was consul suffectus that year, ex Kalendis Juliis, along with 22 others. Nor did he return to Gaul, after this consulate; but was appointed to the command of the army in Germany[x]. The war of the Deserters then was certainly suppressed between A. D. 182 and A. D. 185. The last act of this war appears to have been an attempt made by Maternus to surprise the city of Rome, in the midst of the festivities of the Hilaria[y]; the stated date of which at this time was March 24. Herodian relates this attempt[y] after giving an account of the conspiracy, or supposed conspiracy, of the Præfectus Prætorii Perennis; and the time of that is determined to some time U. C. 935 A. D. 182, after the Kalends of July: both because the two consuls suffecti of that year, Æmilius Juncus and Atilius Severus, appear to have been implicated in it; and by the mention of the Ludi Capitolini[z], which had been in course the same year: and soon after which, by means of the money which his sons had caused to be coined in Illyricum[a], the supposed treason of the Præfect came to light. For these must have been the Games of A. D. 182, the xxvth Capitoline Lustrum. They could not have been those of A. D. 186, the xxvith. Dio[b] attributes the disgrace and downfall of Perennis to the machinations of Cleander; who succeeded him in the Præfectura probably about the end of A. D. 184*, and held it until September

* Lampridius[1] tells us that none of the Præfects appointed by Commodus held their office under him three years in sequence. Two were appointed to succeed Perennis[2]; and were in office at the time of the attempt of Maternus[3]. If so, at the Hilaria A. D. 184. On this principle Cleander

u Ibid. loc. cit.
w Cf. Dio, lxxiv. 3.
x Spartian, Severus, 4.
y Herodian, i. 32–34.
z Ibid. 23.
a Ibid. 27. 28. 24. Cf. Lampridius, Commodus, 4.
b lxxii. 9.

1 Commodus, 14. 2 Herodian, i. 29, 30. Anecdota Gr. Paris. ii. 32. 14–17.
3 Cf. Lamprid. Comm. 6. 7.

A. D. 187: and was certainly filling the office when the 23 consuls were appointed all at once in A. D. 185 [c]. The last year then of the war of the Deserters was most probably A. D. 184. Thus we see that the date of the darkness on the Kalends of January is circumscribed between A. D. 184 and A. D. 187: i. e. it must have happened on the Kalends of January either of U. C. 938, or of U. C. 939, or of U. C. 940. The eclipse must determine among these years in favour of U. C. 940.

SECTION XVII.—*On the relation of the Roman to the Julian Kalends at the death of Commodus. Testimony of Clemens Alexandrinus.*

The death of Commodus is often assumed by Clemens Alexandrinus as an epoch; for which reason, and because he was a contemporary of that emperor, we propose to inquire into his date of that event: and whether it is calculated to throw any light on the relation of the proper Roman calendar of the time to the Julian. Even for this purpose however we must begin with inquiring into his statements or dates of another kind; his date of the Nativity, his date of the Passion, and the length or duration which he assigned to the Ministry of our Saviour.

could not have been appointed much before the end of A. D. 184. Dio and Zonaras tell us [4] he was put to death at the time of the Ludi Circenses: by which those in September, A. D. 187, were probably meant. The Chronicon Paschale dates the dedication of the Θερμαὶ Κομμοδιαναὶ at Rome *this* year, Coss. Crinito et Ulpiano; and yet those baths were built by Cleander [5]. After the attempt of Maternus, Herodian mentions a λοιμὸς and then a λιμός [6]; which last in its consequences led to the downfall of Cleander [7]: and that too implies the latter half of A. D. 187.

[c] Dio, lxxii. 12. Hirtoriæ Aug. SS. Commodus, 6, 7.

[4] Dio, lxxii. 13: Zon. xii. 4. 599 A-B.
[5] Lampridius, Comm. 17.
[6] i. 36. 37.
[7] Ibid. 38–40. Cf. Dio, lxxii. 13. 14. Anecdota Gr. Par. ii. 32. 27–33. 31.

i. *On the date of the Nativity, the date of the Passion, and the Length of our Saviour's Ministry, according to Clemens Alexandrinus.*

i. The Nativity is dated by him in the 28th year of the reign of Augustus[d]; and the reign of Augustus is reckoned by him from the reduction of Egypt, after the battle of Actium, the death of Antony, and the end of the reign of Cleopatra, the last of the dynasty of the Macedonian princes of Egypt[e]: i. e. from U. C. 724, the ivth consulate of Augustus, B. C. 30; which was in fact from the epoch of the Æra Augusta in Egypt, properly so called, Nab. 719 B.C. 30[f]. From this date he twice makes it 222 years to the death of Commodus[h]; which is sufficiently close to the truth, as Commodus died on the last day of U. C. 945 A.D. 192: to which, from August U. C. 724 B. C. 30, the exact interval was 221 years, four or five months; and in round numbers 222 years.

ii. The Passion is dated by him in the 15th year of Tiberius[i]. The beginning of our Saviour's Ministry is dated in the same year[k]; the length of his Ministry is assumed at *one* year complete[l]. And this supposes his Ministry to have begun at the beginning of his thirtieth year, and to have terminated at the end. On these points however we may refer our readers to the Dissertations on the Principles and Arrangement of an Harmony of the Gospels[m].

If then we may only assume at present that Clement dated the Nativity at the same time of the year as the Passion, or the Passion at the same time of the year as the Nativity; it will follow from his own statements that he must have dated the former in the spring of B. C. 2 (that of the 28th of Augustus), and the latter in the spring of A. D. 29, (that of the 15th of Tiberius): and either just 30 years before or after the other.

[d] Stromat. i. xxi. § 145. p. 97. l. 13. p. 98. l. 2.
[e] Ibid. § 139. p. 93. l. 4.
[f] Cf. our Fasti Catholici, iv. 472. Introduction, 14. Part i. ch. ii. sect. viii.
[h] Strom. i. xxi. § 140. p. 94. l. 12. 144. p. 96. l. 24.
[i] Ibid. § 145. p. 97. l. 17–21.
[k] Ibid. l. 17.
[l] Ibid. l. 20–26. Cf. vi. xi. § 87. Tom. iii. p. 150. l. 32.
[m] i. 455: iii. 609 sqq.

ii. *On the time of the year of the Nativity according to Clemens Alexandrinus.*

But with regard to what we have just assumed, that the Nativity was dated by this Father at the same time of the year, and even on the same day of the month, as the Passion; it may be shewn to have been the case, even by his own testimony, and notwithstanding the corruption in the readings of his numbers in particular under which his text labours at present.

For first; his statements with one exception only being taken from his text just as they stand, we have

	y.	m.	d.
From the Passion to the destruction of Jerusalem[n]	42	3	0
From the destruction of Jerusalem to the death of Commodus[n] (128 years)	121	10	3
Consequently from the Passion to the death of Commodus	164	1	3

Add to this 30 years (the interval supposed by him from the Nativity to the Passion), and you get the entire period from the Nativity to the death of Commodus, according to Clemens Alexandrinus, 194 years, 1 month, 3 days; which he himself directly after states at 194 years, 1 month, 13 days[o]: *Γίνονται οὖν ἀφ' οὗ ὁ Κύριος ἐγεννήθη ἕως Κομόδου τελευτῆς τὰ πάντα ἔτη ἑκατὸν ἐννενήκοντα τέσσαρα μὴν εἷς ἡμέραι ιγ'*. Between this statement and the preceding calculation there is no difference except in the fraction of the last month; three days according to one, thirteen according to the other. And even from this difference it must still be an obvious inference that the Nativity, according to Clement, took place either on the very same day of the month as the Passion, or at the utmost only *ten* days earlier; in either case, at the same season of the year in general. So that if Clement dated the Passion in the spring he must have dated the Nativity in the spring; and either on the same day of the month in the spring as the other, or within ten days of it at the utmost. We shall see we trust by and by that he actually dated both on the same day. But we must first say some-

[n] Strom. i. xxi. § 145. p. 97. l. 26. [o] Ibid. l. 30.

thing of the numerical readings of his text in the preceding statements; and whether they can be considered genuine or not.

iii. *On the readings of the numbers in the text of Clement, in the preceding statements.*

With regard to the first of these statements, that of the interval from the Passion to the destruction of Jerusalem, 42 years 3 months; it is certainly at variance with the truth, if the Passion itself is dated A. D. 29: for 42 years 3 months from the spring, A. D. 29, would bring us to the summer, A. D. 71; one year later than the actual date of the destruction of Jerusalem, the summer A. D. 70. Yet notwithstanding this inconsistency, nothing is to be discovered (so far as we know) in any other part of the works of this Father, which would authorize us to infer that this could not have been his actual date of that event. We cannot therefore venture to correct these numbers, merely to make them consistent with what *we* ourselves know to have been the truth. We are entirely of opinion that the 42 years in this statement are as genuine as the 3 months; and that, whatsoever error appears to be involved therein, it must be ascribed to the author himself, and not to some possible corruption of his text.

With regard to the second, which assigns the interval from the destruction of Jerusalem to the death of Commodus; it stands at present, in one instance, 128 years, 10 months, 3 days, (Ἔτη $\overline{ρκη}$ μῆνες ι′ ἡμέραι γ′): in another, 121 years, 6 months, 24 days; Τελευταῖα δὲ ἀπὸ Οὐεσπασιανοῦ ἕως τῆς Κομόδου τελευτῆς εὑρίσκεται ἔτη ἑκατὸν εἴκοσιν ἓν, μῆνες ἓξ, ἡμέραι εἰκοσιτέσσαρες[p]. These statements being compared together it is evident i. that the number of years in the one, 128, must be corrected by that in the other, 121. Clement's date of the Passion being A. D. 29, his date of the destruction of Jerusalem, 42 years after, must have been A. D. 71; and from A. D. 71 121 years bring us actually to A. D. 192, the true year of the death of Commodus. These numbers therefore, 121, are genuine; and consequently the others, 128, must be corrected by them. ii. With regard to the

[p] Strom. i. xxi. § 140. p. 94. l. 17.

number of months, 10 months in one of these statements, 6 in the other, neither can be consistent with the truth as it stands. At whatsoever time of the year Clement dated the Passion, he dated the destruction of Jerusalem only *three* months later in the year than that. Let us be permitted to assume at present that he dated the Passion on a certain day in April. If so, he dated the destruction of Jerusalem on the same day in July. Now Commodus died on the last day of December Roman; and from any day in July to the same day in December, the interval in entire months would not be more than *five*. The reading of ten months then for this interval, in one of these instances, cannot be the genuine one. That in the other, 6 months, is nearer to the truth; but even this must be corrected by reading *five* instead of *six*, (μῆνες ε′ instead of μῆνες ϛ′,) to make it entirely consistent with the truth. iii. With regard to the number of days, *three* days in one of these instances, *twenty-four* in the other; there was another statement of the entire interval from the Nativity to the death of Commodus, as we have seen, which made it 194 years, one month, *thirteen* days: so that with respect to the fraction of the last month of this interval, it is reckoned *de facto* in the text of Clement, as it stands at present, both at *three* days and at *thirteen* days and at *twenty-four* days. But the genuine reading is the *second*; that of the *thirteen* days: ἡμέραι ιγ′. The reading of 24 days might easily be a corruption of this; ἡμέραι κδ′ for ἡμέραι ιγ′: $\overline{\text{ΚΔ}}$ for $\overline{\text{ΙΓ}}$. As to that of three days, it admits also of an easy explanation; if we may only assume that the numbers of Clement stood at first in such a manner as the necessity of the case required, except in the instance of the interval from the Passion to the destruction of Jerusalem: and consequently as follows:

	y.	m.	d.
i From the Nativity to the Passion	30	0	0
ii From the Passion to the destruction of Jerusalem	42	3	0
iii From the destruction of Jerusalem to the death of Commodus	121	5	13
iv From the Nativity to the death of Commodus	193	8	13

Next let us suppose these numbers to stand as follows:

	y.	m.	d.
i From the Nativity to the Passion	30	0	0
ii From the Passion to the destruction of Jerusalem	42	3	0
iii From the destruction of Jerusalem to the death of Commodus	121	10	3
iv From the Nativity to the death of Commodus	194	1	3

Now both these calculations being the same in the first two items of each, it is clear that the corruption under which one of them labours must reside in the third, common to both; i. e. the interval from the destruction of Jerusalem to the death of Commodus. As the text of Clement stands at present this interval is read Ἔτη ρκη, μῆνες ι', ἡμέραι γ': on which we may remark i. That this reading of μῆνες ι' ἡμέραι γ' may be accounted for, if the original was ϵ' μῆνες ἡμέραι ιγ', by supposing an accidental separation and transposition of the ιγ' after ἡμέραι; whereby the ι' came to follow the μῆνες instead of accompanying the γ' after ἡμέραι as before: μῆνες ι' ἡμέραι γ'. ii. If the original reading, as before supposed, was actually Ἔτη ρκα ϵ' μῆνες, it might easily be corrupted into Ἔτη ρκή, by the α and the ϵ coalescing into η, or by the α having been lost out of the text, and the ϵ being changed into η: which in the copying of numbers in ancient Greek authors is a case of very common occurrence. The genuine numbers of Clement are thus recoverable even from the present state of his text; and when restored to their original integrity they come out entirely consistently with the truth, and with our own statements proposed above.

iv. *Date of the death of Commodus according to Clemens Alexandrinus.*

The date of the death of Commodus then being 121 years 5 months 13 days later than that of the destruction of Jerusalem, 163 years 8 months 13 days later than that of the Passion, 193 years 8 months 13 days later than the Nativity; did we know Clement's date of the death of Commodus we could easily obtain from it his date of the destruction of Jerusalem, his date of the Passion, and his date of the Nativity: and each not merely in the year but in the month and in the day.

Now with respect to the Roman date of the death of Commodus; there is no uncertainty. It was the last day of U. C. 945; Pridie Kalendas Januarias, December 31 Roman that year [q]. The only question can be, What was the Julian date of December 31 Roman U. C. 945? According to our calendar, the Kalends of January U. C. 946 fell on December 28 A. D. 192; and therefore Pridie Kalendas Januarias U. C. 945 fell on December 27 A. D. 192. And if that was the true Julian date of the death of Commodus, 13 days before it exactly would be December 14 the same year.

In cases of this kind it is Clement's rule to reckon intervals by calendar months; i. e. from a given day in one month to the same day in another: and though his numbers are frequently corrupt, some genuine examples of this mode of reckoning may be produced from his text even as it stands at present. Thus the reign of Galba is stated at 7 months 6 days [r]: the exact interval by the calendar from June 9 A. D. 68, the day of the death of Nero, to January 15 A. D. 69, that of the death of Galba. The reign of Domitian is reckoned at 15 years, 8 months, 5 days [s]; in which the 8 months are an interpolation: but the rest is just the interval from Sept. 13 A. D. 81 the date of the death of Titus to Sept. 18 A. D. 96 that of the death of Domitian. The reign of Marcus Aurelius is put at 19 years 11 days [t]; in which, after correcting the 11 days by 10 days, we have the exact interval from March 7 A. D. 161 the day of the death of Antoninus Pius to March 17 A. D. 180 that of the death of Marcus Aurelius. Lastly the reign of Commodus itself is estimated at 12 years, 9 months, 14 days [u]; the precise interval in calendar Roman time between March 17 Roman A. D. 180 and December 31 Roman A. D. 192.

On this principle, if we reckon back 121 years, 5 months, 13 days from December 27 A. D. 192, we shall arrive at Clement's date of the destruction of Jerusalem, July 14 A. D. 71. If we reckon back 163 years, 8 months, 13 days from December 27 A. D. 192, or 42 years, 8 months from July 14 A. D. 71, we shall come to his date of the Passion, April 14

[q] Dio, lxxii. 22. Herodian, i. 49: cf. ii. 8. Historiæ Augustæ SS. Pertinax, 4. Victor, Commodus, 17.

[r] Stromat. i. xxi. § 144. p. 96. l. 33.

[s] Ibid. p. 97. l. 3.

[t] Ibid. l. 7.

[u] Ibid. l. 8.

A. D. 29. If we reckon back 193 years, 8 months, 13 days from Dec. 27 A. D. 192, or 72 years, 3 months from July 14 A. D. 71, or 30 years complete from April 14 A. D. 29; we must come to his date of the Nativity, April 14 B. C. 2. And these conclusions are so justly deducible from the premises supplied by himself, as stated above; that unless those can reasonably be called in question these inferences from them must be allowed to hold good.

v. *On the date of the Nativity April* 14 B. C. 2, *and the date of the Passion April* 14 A. D. 29, *according to Clemens Alexandrinus.*

The actual day which Clement of Alexandria recognized as that of the Nativity, and the actual day which he recognized as that of the Passion, are not specified in any of his extant works: though the year which he actually recognized as that of each respectively is so. Yet the conclusion at which we have just arrived, (so justly too, as we contend, deducible from his own testimony,) is demonstrative proof that the most ancient and the most authentic tradition on these points, (that which represented our Saviour to have been born at the same season of the year at which he suffered, and that season in either case the spring, and even on the same day in the spring in one year on which he suffered in another, and vice versa,) must have been known to him; and what is more must have been received and adopted by him: for the preceding analysis of his numbers has shewn that his date of the Nativity and his date of the Passion were both fixed to the same Julian term, April 14, one in the year of the Nativity recognized by him B. C. 2, the other in that of the Passion A. D. 29. Was this then an accidental coincidence, or was it the effect of design? No one, surely, can hesitate to answer that it must have been the effect of design; that such must have been Clement's conviction and belief at least: that the day of the Nativity and the day of the Passion in his opinion were the same; that no day could be the true day of the one which was not also that of the other. Let us then proceed to inquire what there might be to distinguish this particular day of April 14, on which he appears

to have fixed in each case, both as a solar and as a lunar term of the proper kind.

In the first place April 14 Julian was the stated date of Pharmuthi 19 in the Alexandrine calendar, and in every year of the cycle of leap-year alike[w]. It was the Julian date of Pharmuthi 19 B. C. 2, and of Pharmuthi 19 A. D. 29. In the next place Pharmuthi 19 is one of the dates recognized by Clement himself along with several others, similarly assigned in the style of the Egyptian calendar, as traditionally received and accredited in Egypt from a point of antiquity remote even in comparison of his own age; yet in connection with these two events of the Christian history, the Nativity and the Passion: and some of them even as the dates of both; among which number this of Pharmuthi 19 in particular was one. The style of the equable Egyptian calendar and that of the Alexandrine being the same; Pharmuthi 19, in the same special relation to the Nativity or to the Passion, was capable of being referred to and understood of either: and in some of these instances it was referred in each of these relations to the equable calendar[x]; but by Clement of Alexandria (as was naturally to be expected) it was referred to the Alexandrine calendar.

Thirdly, the year of the Nativity, according to Clement, being B. C. 2; that year referred to our General Lunar Calendar answered to Period xiv. Cycle iii. 13: and the date of Nisan 1 that year was April 4 at midnight. In the sacred calendar, or proper Jewish calendar, of the same epoch, Period vi. Cycle i. 9, the first of Nisan bore date March 6 at midnight and the first of Jar April 4 at midnight. But if Nisan that year were to be assumed at 30 days, the first of Jar would be April 5 at midnight. We refer to these things to shew that, B. C. 2, in Clement's year of the Nativity, it must have been perfectly allowable to assume the Luna prima of April April 5 at midnight; and therefore the Luna decima April 14 at midnight. It follows that if our Saviour was born April 14 B. C. 2 he was born on the Luna decima; and therefore if Clement's solar date of the Nativity was April 14 this year

[w] Fasti Cath. iv. 477. Cap. iii. 143—142: 143.

[x] Cf. Ibid. ii. 586: 589, 590. Cf. Prolegomena,

his lunar one must have been the Luna decima, which coincided with it: from which we must of necessity infer that in his opinion the true solar date of the Nativity must also have been the Luna decima the same year; in other words that our Saviour was born on the tenth of the lunar month[y].

Fourthly, we hope to make it appear in the course of the next Dissertation that the lunar cycle, most commonly used in Clement's time for the ecclesiastic or liturgic rule of the Church, was the octaëteris; subject to those corrections which it had long been known to require in order to render it an adequate measure of lunar time perpetually. This correction amounted in strictness to 36 or 37 hours (a day and an half) of mean solar time in every cycle; but, as the half day could not be conveniently intercalated in that form, the rule *de facto* adopted was that of raising the epoch of the cycle three days every two cycles: i. e. one day at the end of the first cycle, and two days at the end of the second: and so on alternately.

On this principle, April 5 B. C. 2 being assumed as the epoch of a succession of cycles of this kind from B. C. 2 to A. D. 29, the date of the first would be April 5 at midnight B. C. 2; that of the second April 6 at midnight A. D. 7; that of the third April 8 at midnight A. D. 15; and that of the fourth April 9 at midnight A. D. 23. And the scheme of this fourth cycle may be drawn out as follows:

Type iv *of the Paschal octaëteris of Clemens Alexandrinus,* April 9 A. D. 23.

A. D.	Cycle.	Midnight.
23	i	April 9
*24	ii	March 28
25	*iii	— 17
26	iv	April 5
27	*v	March 25
*28	vi	April 12
29	vii	— 1
30	*viii	March 21

[y] Cf. our Fasti, ii. 259. Prolegomena, Capp. ii. and iii.

Clement's date of the Passion A. D. 29 would be the viith year of this fourth cycle; in which the stated date of the luna prima being April 1 that of the luna quartadecima was April 14*. And, if Clement's solar date of the Passion this year was April 14, his lunar date must have been the lunar fourteenth. And thus it appears at last that through this common term of the solar Pharmuthi 19 or April 14 Clement's date of the Nativity B. C. 2 coincided with the luna decima; and his date of the Passion A. D. 29 with the luna quartadecima: and it must be evident that, if this lunar term A. D. 29 represented the fourteenth of his Nisan or Xanthicus, the corresponding one B. C. 2 must have represented the tenth of the same. It follows that the true lunar date of the Nativity in his opinion was the tenth of Nisan, just as much as that of the Passion the fourteenth; yet each too as coincident in its proper order of time with the same fixed solar term, Pharmuthi 19 or April 14. From whence then, we demand, did this Father derive this opinion? or in what respect did his convictions and his assumptions differ from our own? except that our lunar date of the Nativity was the 10th of Nisan B. C. 4, and our lunar date of the Passion was the 14th of Nisan A. D. 30, and our solar date of both was April 5?

Lastly, if it is to be supposed that no date either lunar or solar could be deliberately proposed as that of the Passion which did not coincide (or was not believed to coincide) with the *sixth* day of the week; Pharmuthi 19 or April 14 A.D. 29 must have been considered by Clement the feria sexta: and consequently the hebdomadal character of the year must have been supposed by him to have been A. That was not

* Were the series of Types proposed here to be continued down to A. D. 71, Clement's year of the destruction of Jerusalem; the xth would be found bearing date April 18 A. D. 71: and if the first month of this Type were reckoned at 29 days, the fourth would be found falling on July 15; the day after July 14: which, as we have concluded, was actually Clement's day of the destruction the same year. Even this would approach as near to the truth as under the circumstances of the case was to be expected. The true year of the destruction was A. D. 70; and the true day that year was Ab 7 August 2. The first of Ab that year fell July 27. The next year, A.D. 71, it fell July 16; only one day later than Clement's *fourth month*, July 15.

indeed the case A. D. 29; nor does it follow from *his* assumptions that it must have been so. All that we have to do is to explain if possible on what principle he might have assumed it to be so. The method which he was most likely to adopt in order to determine the hebdomadal character of A. D. 29 would be to take some year in his own time, which stood at the distance of a complete number of cycles of 28 years from it; and to treat the hebdomadal character of A. D. 29 as the same with that of this in his own time. Such a year was A. D. 169 or A. D. 197: each of them, (particularly the latter,) one in his own time. In either of these the Dom. Letter was A; and April 14 or Pharmuthi 19 was the Feria 6ª.

vi. *Conclusion from the above premises.*

The circumstances of distinction which have thus been pointed out, as characterising this date of Pharmuthi 19 April 14 in connection with the Nativity and the Passion in the proper year of each, according to Clemens Alexandrinus, are curious and striking. They must do much to authenticate this Julian term of April 14 as his actual date of the Nativity and of the Passion. If so, the inference from it in illustration of the relation of the Roman to the Julian calendar at the death of Commodus is inevitable. This date of the Nativity and of the Passion has been directly obtained from that of the death of Commodus, Pridie Kalendas Januarias U. C. 945. One cannot be true, and the other false. Both must stand or fall together. If April 14 was actually Clement's date of the Nativity, December 27 must have been actually the date of the death of Commodus; and if that was the case, the Kalends of January U. C. 946 must have been falling on December 28: just as our own calendar shews that they were at this point of time. And though we have spoken of one of these dates as standing or falling with the other; in reality this question, whether the Kalends of January at the death of Commodus fell on December 28 or not, does not depend on the truth of the conclusion that Clement's date of the Passion or of the Nativity was April 14. As we have argued the question indeed in the preceding pages; the latter cannot be true and the former false. But we confess

that, though the question depended on that issue only, we do not see how it could be decided except in the affirmative. We can perceive no error in the steps of the reasoning through which we have arrived at the discovery of his date. We have corrected his numbers in some instances, it is true; but only to make him consistent with himself, and *from* data supplied by himself. These corrections being admitted, the rest follows as matter of course; and we not only ascertain Clement's actual opinions and assumptions on two very interesting points, the date of the Nativity and the date of the Passion; but we also confirm our calendar at one of the most important points of time in the whole interval from B. C. 45 to A. D. 225, viz. A. D. 192, by the testimony of a contemporary and an eyewitness.

SECTION XVIII.—*On the relation of the Roman to the Julian Kalends* A.D.193–194. Dies Ægyptiaci *of the Constantian Calendar.*

In the Constantian calendar, of which we have frequently had occasion to make mention heretofore and of which we hope to give a more particular account hereafter, an entry appears opposite to such and such days of the month, all round the year; but never in any terms except those of Dies Ægyptiacus. There are two or three of these in every month; *twenty-six* in the whole of the year. They do not stand at regular distances from one another: the first in January for instance is opposite to the *second* of that month, the second is opposite to the *sixth*, the third is opposite to the *sixteenth*. The first in February stands opposite to the *seventh* of that month; the second opposite to the *twenty-fifth*: and so on. In short there is nothing discoverable in the calendar itself in connection with these days, from which an idea could be formed of the nature of such days themselves, except the name; Dies Ægyptiaci. This name must imply that such days in their origin were Egyptian, not Roman; days which were characteristic originally of the Egyptians, before they became so of the Romans: days which the Egyptians must have noted and observed for some reason or other, and consequently in their proper calendar, before the Romans did so in their proper calendar too.

If such days as these then, and under such appellations, appear in the Roman calendar, they must some time or other have been transferred to the Roman from the Egyptian calendar; and, as the Romans never did more in such cases than substitute for the proper Egyptian dates such of their own as happened to be coinciding with them at the time, these Roman dates of the Dies Ægyptiaci in question are after all the Egyptian merely in the form of the Roman: and did we but know the year in which they were actually transferred to the Roman calendar, it would be very possible through these Egyptian dates and their proper Julian ones at that time to ascertain the relation of the Roman to the Julian calendar at the same point of time.

Now as these days appear in such numbers and under their proper title on a public monument like this Constantian calendar, they must some time or other have been introduced into the calendar by *authority;* and most probably too all at once: and no doubt also long before the date of this monument in particular, which as we hope to see hereafter was A. D. 355. Nothing of this kind however could possibly have been done at Rome before the reign of Claudius at the earliest; when first the superstitions of Egypt received the sanction of law, and began to be not only tolerated at Rome but recognized and adopted there. Nor could such days as these, and under such denominations, have got a footing in the Roman calendar even then; nor in fact until long after. We shall search in vain for any allusions to them in the contemporary classical writers. They occur first only in the Christian Fathers who wrote in Latin, Tertullian, Cyprian, Arnobius, Ambrose, Augustin: and, from their mode of referring to them and characterising them, it is clear that these days were not such as Christians could observe with a safe conscience; they were to be classed among the other relics and reminiscences of the superstitions and prejudices of paganism in their most objectionable form. In short, these Dies Ægyptiaci of the Roman calendar of later times seem to have succeeded to the place and estimation of the Dies religiosi of former times; and probably were something even worse than those. These Dies Ægyptiaci too, so characteristic of Egyptian superstition, had no doubt been signalized

and consecrated by private respect and observance long before they were publicly recognized; and it was most probably this prior and general observance of them by individuals which caused them to be taken into the calendar at last, and to be set down there for every one's notice.

We have no testimony indeed to produce to the time when this was actually done. And yet the act itself was of a nature to bear witness to its own date. The Roman dates of these days, could they be reduced to the Egyptian from which they were originally taken, must coincide with certain days in the Egyptian calendar more remarkable than others. We may then, if we please, assume a year *hypothetically* as that in which this was done; a year too in which the Roman Kalends may be supposed to be known from our own Roman calendar, and the Egyptian still more certainly from our Fasti Catholici and General Tables: and if, when we proceed to reduce the Roman dates of these Dies Ægptiaci according to the one to the Egyptian of the same year according to the other, we find them falling on remarkable Egyptian days, and days known to have been religious among the Egyptians, and in more instances than could reasonably be supposed to be the effect of accident; it may be fairly inferred that the year of which such coincidences hold good must actually have been that in which these Egyptian dates were transferred to the Roman calendar. The principle of this reasoning, as we have explained it, we trust is intelligible; and if so, it must be allowed to be sound and just in itself: and it may possibly lead to a right conclusion.

The year to which we propose to apply this test is Nabon. 941 or 942, A.D. 193–194 or 194–195; in each of which the first of Thoth at midnight was falling on July 6 at midnight. If the results of the test are satisfactory and such as we anticipate from it, we shall prove thereby that in any of these years, A.D. 193, 194, or 195, the relation of the Roman Kalends to the Julian must have been such that the fourth of every Roman month was falling on the first of the corresponding Julian one. We shall begin with extracting the dates in question from the Constantian calendar, and exhibiting them collectively; but in the order of the Equable not of the Julian year.

Dies Ægyptiaci of the Constantian Calendar, transferred to the Roman Calendar Nab. 941 *or* 942, A. D. 193 *to* 194 *or* A. D. 194 *to* 195 *: when the Roman Calendar was* three *days behind the Julian.*

Egyptian months.	Julian.	Roman.	Dies Ægyptiaci.	Roman.	Julian.	Egyptian.	A. D.
Thoth	July 6	July 9	xv Kal. Aug.	July 18	July 15	Thoth 10	193
..	..	..	viii Idus Aug.	Aug. 6	Aug. 3	.. 29	..
Phaophi	Aug. 5	Aug. 8	xii Kal. Sept.	Aug. 21	Aug. 18	Phaophi 14	..
..	..	..	iv Non. Sept.	Sept. 2	Aug. 30	.. 26	..
Athyr	Sept. 4	Sept. 7	xiii Kal. Oct.	Sept. 19	Sept. 16	Athyr 13	..
..	..	..	v Non. Oct.	Oct. 3	.. 30	.. 27	..
Chœac	Oct. 4	Oct. 7	xiii Kal. Nov.	Oct. 20	Oct. 17	Chœac 14	..
..	..	..	iv Non. Nov.	Nov. 2	.. 30	.. 27	..
Tybi	Nov. 3	Nov. 6	viii Kal. Dec.	Nov. 24	Nov. 21	Tybi 19	..
..	..	..	Prid. Non. Dec.	Dec. 4	Dec. 1	.. 29	..
Mecheir	Dec. 3	Dec. 6	xix Kal. Jan.	Dec. 14	Dec. 11	Mecheir 9	..
..	..	.	iv Non. Jan.	Jan. 2	.. 30	.. 28	..
Phamenoth	Jan. 2	Jan. 5	viii Idus Jan.	Jan. 6	Jan. 3	Phamenoth 2	A D. 194
..	..	..	xvii Kal. Feb.	.. 16	.. 13	.. 12	..
Pharmuthi	Feb. 1	Feb. 4	vii Idus Feb.	Feb. 7	Feb. 4	Pharmuthi 4	..
..	..	..	v Kal. Mart.	.. 25	.. 22	.. 22	..
..	..	..	v Non. Mart.	Mar. 3	.. 28	.. 28	..
Pachon	Mar. 3	Mar. 6	ix Kal. Apriles	Mar. 24	Mar. 21	Pachon 19	..
..	..	..	iv Non. Apriles	Apr. 2	.. 30	.. 28	..
Paüni	Apr. 2	Apr. 5	xiii Kal. Mai.	Apr. 19	Apr. 16	Paüni 15	..
..	..	..	xi Kal. Mai.	.. 21	.. 18	.. 17	..
..	..	..	v Non. Mai.	May 3	.. 30	.. 29	..
Epiphi	May 2	May 5	xii Kal. Jun.	May 21	May 18	Epiphi 17	..
Mesore	June 1	June 4	vii Idus Jun.	June 7	June 4	Mesore 4	..
..	..	..	xii Kal. Jul.	.. 20	.. 17	.. 17	..
Epagomenæ	July 1	July 4	Prid. Non. Jul.	July 6	July 3	Epagomenè 3	..

The first remark which may be made on the above scheme of these days is That they must have been so purely Egyptian in their origin, and also in their obligation, that they might fall on the proper *dies feriati* of the Roman calendar; yet without affecting their character as holidays in that. One of them for instance falls on the xi Kalendas Maias, the date of the Palilia, or the Natalis Urbis itself; one of the greatest holidays in the Roman year. Another falls on the xiii Kalendas Maias, April 19 Roman, one of the stated dates of the Ludi Cereales. And so in other instances. Some fall on days marked *Senatus legitimus;* days on which the senate was ordinarily to meet: none of which in the Roman calendar properly so called could possibly have been religious. And these coincidences, it is evident, do not depend on the year in which these days were actually transferred to the calendar, but simply on the places assigned them therein. It follows too that, though some of them do certainly fall also on days which are known to have been religious in the Roman calendar itself, (such as the Dies Postriduanus, the day after the Kalends, or the day after the Nones,) that coincidence must have been accidental. These Dies Ægyptiaci did not derive their religious character from such coincidences. They happened to fall on such days when they were consigned to the calendar; and that was all.

Again, the entry attached to one of these days, the iv Non. Nov. Nov. 2 Roman, is Ternovena, Dies Ægyptiacus. The number 27, or three times nine, was certainly a mystical one in the estimation of the ancient Romans; as appears from a very old ceremony among them, connected with the lustration or cleansing of the city, after omens of a certain kind: when 27 virgins went about in public chanting a *Carmen,* composed for the occasion[z]. But that was not an annual ceremony: nor when it was actually performed had it a stated date. These Ternovena were evidently annual; and their proper day in the calendar was Nov. 2. The most probable explanation of them is supplied by the Egyptian date with which the Roman coincides in this instance, Chœac 27.

[z] Cf. Livy, xxvii. 37: Festus, xvii. 491. 4. Scribas. Obsequens, lxxxvi: xciv: xcvi: ciii: cvi: cviii: cxiii.

It is observable that Dies Ægyptiacus stands opposite to the v Nonas Octobres, October 3 Roman, in the preceding month also; and that day too reduced to the Egyptian calendar falls on the 27th of Athyr. Ternovena indeed is not found on the stone here, as well as opposite to iv Non. Nov. But that might be due to the accident that its place is occupied in this instance by Senatus Legitimus; and there was no room for it. The coincidence holds good in either case; that the 27th of Athyr under its Roman date of October 3 was Dies Ægyptiacus, and the 27th of Chœac under its Roman one of Nov. 2 was so too: and if the latter was religious because it was Ternovena, the former was so most probably for the same reason. We may fairly infer from these coincidences that the 27th of the Egyptian month in its own calendar was religious, and distinguished by ceremonies of some kind which had respect to its place in the month, as the 27th, or the third ninth; and that it was called by the Romans on that account Ternovena: though they admitted two of these only into their own calendar; the Ternovena of Athyr and the Ternovena of Chœac, consecutive months.

Again, we observe this note of Dies Ægyptiacus, in the above scheme, attached to three days in three consecutive months, just 30 days asunder one from another; the xi Kalendas Maias April 21 Roman, the xii Kalendas Junias May 21 Roman, and the xii Kalendas Julias June 20 Roman: and that is a coincidence which could not have been accidental. When these Roman dates are reduced to the Egyptian the first is found to fall on Paüni 17; the second on Epiphi 17; and the third on Mesore 17. Now no fact is better ascertained in connection with the ancient Egyptian calendar than *this*, that the 17th of the month in it was religious[a]. If the 17th of Paüni, the 17th of Epiphi, and the 17th of Mesore, the same day in three consecutive months in that calendar, was religious, why not the 17th of every other month also? We have ourselves shewn that besides these the 17th of Tybi and the 17th of Chœac were so[b]. We may fairly assume then that these three days, April 21, May 21, and June 20, just 30 days asunder one from an-

[a] See our Fasti Catholici, iii. 85. [b] Ibid. 160. Cf. Supra, p. 172.

other, were purposely transferred to the Roman calendar, as the representatives of three of these days in three consecutive Egyptian months; and as specimens or samples of the rest.

These coincidences in our opinion are competent to establish the fact for which we are contending; viz. that these Egyptian dates must have been transferred to the Roman calendar Nab. 941 A. D. 193—194, or Nab. 942 A. D. 194—195, the only years in which they would actually hold good. Yet there are other very critical intimations of the same thing to which we have not yet adverted. As i. it appears from the scheme that Pridie Nonas Julias, July 6 Roman, was a Dies Ægyptiacus. The reduction of this date to the Egyptian calendar brings it out Epagomenè 3: i. e. the birthday of Typhon; which is known to have been an ἡμέρα ἀποφράς in that calendar, and one of the most so of all[c]. ii. Another of these Dies Ægyptiaci was iv Nonas Januarias January 2 Roman; and that was a day consecrated to the service of Isis, even in the Roman calendar, from as far back as B. C. 89[d]: and no doubt by the worshippers of Isis at Rome always esteemed religious. iii. Another of these Dies Ægyptiaci was the viii Idus Januarias, Jan. 6 Roman; the reduction of which to the Egyptian calendar brings it out Phamenoth 2. Now that is a critical coincidence; viz. that this Roman day should be religious, yet fall clear of Phamenoth 1. For though Phamenoth 1 in the Egyptian calendar, being the date of the Ἔμβασις of Osiris[e], could not possibly have been religious in its proper calendar, there is no reason why Phamenoth 2 might not have been so. iv. It is very observable too that the first of these Dies Ægyptiaci in the order of the equable calendar falls on the 10th of Thoth; i. e. on the first of the divisions of the equable month by decads or tens. There is good reason to believe that this division into tens was characteristic of the Egyptian months, and was attended to throughout their calendar. Nor is there any reason why we should not suppose that the first of the kind was thus purposely transferred to the Roman calendar, and

c Cf. our Fasti Catholici, ii. 384: iii. 140 sqq.: cf. i. 152, 153.
d See Vol. iii. 266.
e Cf. our Fasti Catholici, ii. 501 sqq.

as a specimen of the rest. It is very observable also that one of these Roman dates of the Dies Ægyptiaci, the xii Kalendas Septembres, August 21 Roman, falls on Phaophi 14; i. e. Phaophi 14 in its proper calendar was religious. In the fabulous and factitious history and chronology of the monuments of Egypt Phaophi 14 was the very reverse of religious; being the day of the assumption by Horus of the double crown: i. e. of the sovereignty both of upper and of lower Egypt[f]. Such is the difference between truth and falsehood; between a genuine scheme of Egyptian days and their characters, such as we recover from these Dies Ægyptiaci of the Roman calendar, and that spurious one which only can be obtained from the monuments and sculptures.

We might make further remarks on the above synopsis. But we think that enough has been done already to confirm our position that these days must have been transferred to the Roman calendar in A. D. 193—194, or 194—195. We incline to the opinion that they were actually so transferred A. D. 193—194, which was the first year of the reign of Severus; the epoch of which too *de facto* was very near the first of Thoth Nab. 941, July 6 A.D. 193. U.C. 946 indeed the Kalends of January fell on December 28 A. D. 192; but the year was leap-year *extra ordinem:* and after the month of February A. D. 193 the Roman Kalends all round the calendar would anticipate *three* days on the Julian. And such is the relation which actually exists between the Roman dates in the above synopsis, and the Egyptian; both being reduced to the corresponding Julian ones.

There is yet another entry in the Constantian calendar which we shall take this opportunity of noticing. It occurs opposite to v Kalendas Septembres, August 28 Roman, in the form of *Solis et Lunæ.* The entire entry it is evident must have stood *Solis et Lunæ Sacrum:* and it must have been intended to commemorate a ceremony of some kind in honour of the sun and the moon in conjunction, and on a day common to both. Now there is no day which can make part both of the solar and the lunar month at once, and be strictly common to both, so properly as that of the solar and lunar conjunction; nor any such day which is so remarkable

[f] Cf. our Fasti Catholici, iii. 411 note.

of its kind as that of a solar and lunar conjunction which happens to be ecliptic also.

The Chaldæan cycle of the Saros, like the Egyptian from which it was derived, had a double epoch; one for the entire series of lunar eclipses which entered it, the other for the entire series of solar which entered it also. The former was August 11; the latter was August 26[g]. No day therefore could be considered so peculiarly sacred to the sun and the moon in conjunction, wheresoever this cycle was known and received, as August 26. We have seen too that even in Italy August 11 was still recognized as the epoch of this cycle in one of these capacities, as late as the time of Claudius the Tuscan, A. D. 51. It is but consistent that August 26 should have been still recognized there in the other capacity, at the same point of time or even later.

Now, were the first of August Roman to be reckoned from July 30 Julian, this entry of August 28 Roman would be altogether the same as August 26 Julian; and this stated sacrum of the sun and the moon in conjunction would thus fall on the traditionary epoch of the entire cycle of solar eclipses. We have no doubt that this is the true explanation of the entry. Consequently it must have been consigned to the calendar when August 28 Roman was coinciding with August 26 Julian; and therefore the Kalends of August with July 30, and the Kalends of January with December 30. Now, if we except B. C. 45 and 44, there was no period in the administration of the Julian Correction at Rome when that could have been the case for any length of time, but these two; A. D. 5 to A. D. 19, and A. D. 161 to A. D. 180. The latter coincided with the reign of Marcus Aurelius throughout its duration. We are entirely of opinion that this Sacrum Solis et Lunæ, attached to this date of August 26, yet under its proper Roman form of v Kalendas Septembres, was introduced into the calendar some time in this reign. Consequently that it is one among the other proofs of the actual relation of the Roman to the Julian calendar all through it.

[g] Cf. our Fasti Catholici, iv. 107.

SECTION XIX.—*On the relation of the Roman to the Julian Kalends* A. D. 198 *or* 199. *Testimony of the* Deipnosophistæ *of Athenæus.* i. *Date of the Deipnosophistæ.*

There is no work extant at present in the Greek language which is more agreeable and entertaining, or, for the variety of information on almost every subject contained in it, more useful and instructive, than the Deipnosophistæ of Athenæus. The chronology of this work then, we take it for granted, would be a question of interest under any circumstances to the admirers and students of classical antiquity. But we are induced to refer to this question at present because the testimony of this work also is capable of being rendered available for our proper purpose; the illustration of the Roman calendar at the time of its composition. We shall begin therefore with inquiring into its date.

Its own evidence shews that it must have been later than the reign of Adrian[h]; later than the reign of M. Aurelius[i]; and later than the reign of Commodus[k]: each of these emperors being mentioned in the course of the work, and all as older than the time of the work itself, but not all as older than the time of the author. And as no emperor later than Commodus is recognized in it by name; opinions have been divided, whether it was written in the reign of Severus, or in that of Antoninus Bassianus or Caracalla, his son, or in that of Alexander Severus: though the learned appear to incline to the conclusion that it was actually written in the last of these reigns; and consequently between A. D. 222 and A. D. 235. But to our apprehension, and in our judgment, it seems a much more probable inference from the fact just mentioned, (viz. that three emperors only, Adrian, Marcus Aurelius, and Commodus, are alluded to by name in a work which touches on such a variety of subjects and contains such miscellaneous information of every kind,) that the work itself must have been written in the reign next after the last of those three; that is, in the reign of Severus. We will endeavour to prove this conclusion a little more clearly and more at large.

i. It is admitted that the Variæ Historiæ of Ælian must

[h] viii. 63: xiii. 34: xv. 21. [i] i. 4. [k] xii. 53.

have been later than the Deipnosophistæ, because the former have borrowed largely from the latter[l]. The precise date of this work of Ælian's may be doubtful: but Ælian's own age is not doubtful. He was at Rome at the death of Elagabalus[m], March 8 or 11 A. D. 222; and it is most probable that his principal works, including the Variæ, had been written before that time: in which case the Deipnosophistæ could not have been later than A. D. 222.

ii. Among the authors De Re Piscatoria in prose or in verse older than Athenæus and recognized by him, Oppian of Cilicia is one[n]: Οὕτω καὶ ταύτην τὴν τέχνην ἀκριβοῖ μᾶλλον (sc. Ὅμηρος) τῶν τοιαῦτα προηγουμένως ἐκδεδωκότων ποιήματα ἢ συγγράμματα· Καικίλιον λέγω τὸν Ἀργεῖον, καὶ Νουμήνιον τὸν Ἡρακλεώτην, Παγκράτην τὸν Ἀρκάδα, Ποσειδῶνα τὸν Κορίνθιον, καὶ τὸν ὀλίγῳ πρὸ ἡμῶν γενόμενον Ὀππιανὸν τὸν Κίλικα. τοσούτοις γὰρ ἐνετύχομεν ἐποποιοῖς Ἁλιευτικὰ γεγραφόσι.

A poem is still extant on this subject of Halieutica, ascribed to an Oppian of antiquity. Another is extant likewise on the subject of Κυνηγετικὰ, ascribed to an Oppian also. And there is so much difference in the style and manner of these two poems, the former exhibits internal evidence of so superior a genius, that both could not have been the work of the same author. Oppian who wrote the Halieutica must have been a different person from Oppian who wrote the Kynegetica. The former might be a Cilician; (there is no proof in the work itself at least to the contrary, and there is presumptive proof to that effect;) but the latter, as it appears from his own testimony, must have been a Syrian. The latter too certainly wrote in the reign of Caracalla; but it does not appear that the former did so: and as he died young (at the age of 30, according to the Vita), if he wrote before this reign, the Deipnosophistæ, which allude to him in the above terms, as Ὀλίγῳ πρὸ ἡμῶν γενόμενον, could scarcely have been later than the reign of Severus*.

* There is no doubt considerable difficulty in distinguishing between the respective personal history of these two authors, both of the name of Oppian; to one of whom the Kynegetica and to the other the Halieutica is to be attributed.

[l] Athenæus, Schwaegh. Præfatio, vii Notæ: and the Præfatio to the Ælian of Perizonius.

[m] Cf. our Fasti Catholici, ii. 599, note.

[n] i. 22.

iii. It is certainly the opinion of the latest and most learned of the editors of Athenæus that the actual date of the Deipno-

The Oppian who wrote the Kynegetica certainly lived in the reign of Antoninus, the son of Severus; to whom that poem is dedicated[1]. But he was certainly not a native of Cilicia. His own testimony[2] shews that he was a native of some city on the Orontes in Syria, which his editor Schneider[3] considers to have been Apamea.

On the contrary it is clear from the Halieutica that the author of that poem was a native of Cilicia.

> Σοὶ δ' ἐμὲ τερπωλήν τε καὶ ὑμνητῆρ' ἀνέηκαν
> δαίμονες ἐν Κιλίκεσσιν ὑφ' Ἑρμαίοις ἀδύτοισιν,
> Ἑρμεία σὺ δ' ἐμοὶ πατρώϊε, κ', τ. λ.[4]

> Ἀνθιέων δὲ πρῶτα περίφρονα πεύθεο θήρην
> οἵην ἡμετέρης ἐρικυδέος ἐντύνονται
> πάτρης ἐνναετῆρες ὑπὲρ Σαρπηδόνος ἀκτήν·
> ὅσσοι θ' Ἑρμείαο πόλιν ναυσίκλυτον ἄστυ
> Κωρύκιον ναίουσι καὶ ἀμφιρύτην Ἐλεοῦσαν[5].

> Ἀλλ' οὐδ' ἠϊθέοιο πόθους ἐπὶ πᾶσα λέληθεν
> Αἰολίς· οὔτι παλαιὸν ἐφ' ἡμετέρῃ δὲ γενέθλῃ
> Δελφὶς ὥς ποτε παιδὸς ἐράσσατο νησαίοιο, κ', τ. λ.[6]

This Oppian therefore must be the subject of the Vita commonly prefixed to these poems; and of the short memoir in Suidas. He is there represented as a native of Anazarbus or Corycus in Cilicia; the son of Agesiläus and Zenodote. His father was the principal man of his city; but by disposition and choice of a philosophical turn of mind, and of corresponding habits of life: and it is recorded of him in this Vita that having on some occasion, when the emperor, (called Severus,) was at Anazarbus, failed to pay him the proper degree of respect, by attending his levee, he was ordered by him into banishment to the island of Melite, in the Adriatic; which is probably to be understood not of the island now called Malta, but of that which is called Melide, off the coast of the ancient Illyricum. Oppian his son of his own accord accompanied him to this scene of his exile; being at that time thirty years of age: and while they were both there he wrote the Halieutica. After the death of Severus (according to the Life) and in the reign of Antoninus his son, he brought his poem to Rome; and recited it there before the emperor, with so much applause and admiration, that he was desired to ask for any favour which he pleased: a permission of which he availed himself to procure his father's release from banishment. And not only was this granted him, but he was also presented by the emperor with the magnificent donation of a stater, or χρυσοῦς, an aureus, (25 drachmæ, 16 shillings 1¾d. of our money,) for every line of

[1] i. 1–7 : iv. 20. [2] ii. 109–138 : 115, 116 : 126, 127 : 145–158.
[3] Præf. Pag. i. [4] iii. 7. [5] iii. 205. [6] v. 458.

sophistæ was A. D. 228[o]; but we cannot discover on what better or more certain foundation this opinion is rested than

his poem. The Vita adds that he returned with his father to Anazarbus; and soon after was cut off, in the prime of life, by the plague: leaving both his parents still alive.

Schneider is of opinion that the author of the Halieutica lived and wrote in the reign of M. Aurelius[7]; and in that opinion we fully concur. The reigning emperor is recognized by the name of Antoninus; and he is supposed to have one son, but no more, who appears to be described as if associated with him in the empire: and on this principle must have been Commodus. We will collect these allusions, and subjoin them.

Ἐθνεά τοι πόντοιο πολυσπερέας τε φάλαγγας
παντοίων νεπόδων, πλωτὸν γένος Ἀμφιτρίτης,
ἐξερέω γαίης ὕπατον κράτος Ἀντωνῖνε[8].

Σοί τε μάκαρ καὶ παιδὶ μεγαυχέϊ πώεα θήρης[9].

Σὺ δ' ἰθύνειας ἕκαστα
πόντια θεὰ, καὶ πατρὶ καὶ υἱέϊ παμβασιλῆος
θυμήρη τάδε δῶρα τεῆς πόρσυνον ἀοιδῆς[10].

Σοί τε μάκαρ σκηπτοῦχε καὶ ἀγλαόπαιδι γενέθλῃ
καὶ λαοῖς σύμπασι καὶ ἡμετέρῃσιν ἀοιδαῖς[11].

Νῦν δ' ἄγε μοι σκηπτοῦχε[12] κ', τ. λ.

Ἀλλὰ σύ μοι κάρτιστε πολισσούχων βασιλήων,
αὐτός τ' Ἀντωνῖνε καὶ υἱέος ἠγάθεον κῆρ
πρόφρονες εἰσαΐοιτε[13] κ', τ. λ.

Ἔνθεν ἔπειτ' ἀΐων τεκμαίρεο κοίρανε γαίης[14].

Τόσσ' ἐδάην σκηπτοῦχε διοτρεφὲς ἔργα θαλάσσης[15] κ', τ. λ.

For the first eight or nine years of his reign however, A. D. 161–169, the emperor Marcus had a colleague, Lucius Verus; whose name might easily be confounded with that of Severus. The personal character of Lucius Verus, in contradistinction to that of Marcus Aurelius, was such that an act of severity, apparently greater than the offence which provoked

[o] Præfatio, vii. Animadversiones, Tom. i. p. 19—21.

7 Note ad Lib. iii. p. 404: Præf. i. 8 i. 1. 9 i. 66. 10 i. 77.
11 ii. 41. 12 iii. 1. 13 iv. 4. 14 v. 1. 15 v. 675.

the very questionable assumption that one of the guests at this banquet of sophists, Ulpian by name and described as a

it, such as the Vita refers to in the account of the treatment of the father of Oppian, would not be incredible of him; and it happened too that A. D. 166 he was returning from Syria to Rome, through Asia, from the Parthian war: on which occasion he might be at Anazarbus. If Agesiläus was ordered into banishment A. D. 166, it may very well be supposed that he was still in banishment for the rest of the reign of Verus, A. D. 166–169. And during this time Oppian might be composing his Halieutica at Melite also. Besides the allusions to the reigning emperor, which occur in this poem, produced above, there is another, not yet produced; which is perhaps the most critical of all for the determination of this question of its age.

Νῦν γάρ σε Δίκη θρέπτειρα πολήων
γινώσκω μερόπεσσι συνέστιον ἠδὲ σύνοικον,
ἐξ οὗ μοι κραίνουσι μέγαν θρόνον ἐμβεβαῶτες
ἄμφω θεσπέσιός τε πατὴρ καὶ φαίδιμος ὄρπηξ,
ἐκ τῶν μοι γλυκὺς ὅρμος ἀνακτορίης πεπέτασται.
τούς μοι καὶ ῥύοισθε καὶ ἔμπεδον ἰθύνοιτε
πολλαῖς ἐν δεκάδεσσιν ἑλισσομένων ἐνιαυτῶν
Ζεύς τε καὶ οὐρανίδας Ζηνὸς χορὸς, εἴ τις ἀμοιβὴ
εὐσεβίης, σκήπτρῳ δὲ τελεσφόρον ὄλβον ἄγοιτε[16].

This allusion to many decads of years is something singular. It must be inferred from it that one or more such periods in the reign of the emperor for the time being had already passed; so that, if the poem was really written in the reign of Marcus Aurelius or Marcus Antoninus Philosophus, it could not have been written earlier than the eleventh year of that reign, A. D. 171. In our opinion it was finished A. D. 171; and it is a strong confirmation of this conclusion that this is precisely the year, to which Eusebius if not Jerome actually refers it[17]: A. D. 171.

And this date is the best calculated to explain the rest of the history of Oppian; and in particular his early death, after his return to Anazarbus. For let us suppose that he returned this year. A plague which is memorable in history, both for its severity and for the length of its duration, began in upper Asia A. D. 164 or 165; and was propagated into lower Asia, and over all parts of the Roman empire, in A. D. 166 and A. D. 167. It was raging at Rome A.D. 167 and 169, as we know from the contemporary testimony of Galen and of Aristides the sophist. In fact it lasted many years. Nothing therefore could be less improbable at this time than such a contingency as Oppian's being carried off by it this very year, A.D. 171, or the next, A. D. 172; immediately after his return home.

16 ii. 680.

17 Eusebius, Chron. Arm. Lat. ii. 291. Ad Ann. 2186. Jerome, Thesaurus Temp. ad Ann. 2188. Olymp. 237. 4. Oppianus Cilix poëta cognoscitur, qui Halieutica miro splendore conscripsit.

Tyrian [p], was the celebrated jurisconsult Domitius Ulpianus, Præfect of the prætorian guard in the reign of Alexander Severus. Were that assumption founded in fact, the inference from it would be just: for according to Athenæus himself [q] Ulpian the Deipnosophist died a few days after the conclusion of the banquet; and Domitius Ulpianus, the præfectus prætorii of Alexander Severus, died A. D. 228 [r].

It is singular however that so learned a man, or any other before him, should have fallen into this mistake of confounding the Ulpian of the Deipnosophistæ with the Ulpian of the Historia Augusta. The objections to that hypothesis are insuperable; and without insisting on every thing of that kind which might be urged to the contrary, (particularly the fact that Athenæus' Ulpian was a Rhetor by profession, familiarly known among his friends and acquaintance by the surname of Κειτούκειτος, Domitius Ulpian was a lawyer and a soldier,) we shall be content with pointing out *one*, taken from the circumstances of the death of each respectively.

Domitius Ulpianus the jurisconsult and captain of the guard certainly died in A. D. 228; but he did not die a natural death. He lost his life in a mutiny of his own soldiers; to whom he had become obnoxious for some reason or other. Such an end could never have been spoken of as an *happy* or *fortunate* one; as a *natural* death at least, howsoever sudden and unexpected. Now of the death of the Ulpian of Athenæus *this* is said [s]: Καὶ μετ' οὐ πολλὰς ἡμέρας, ὥσπερ αὐτοῦ σιωπὴν καταμαντευσάμενος, ἀπέθανεν εὐτυχῶς, οὐδένα καιρὸν νόσῳ παραδοὺς πολλὰ δὲ λυπήσας ἡμᾶς τοὺς ἑταίρους. We understand this observation of Οὐδένα καιρὸν νόσῳ παραδοὺς to mean not that his death was preceded by *no* illness, but only by none of *any length;* that he died after a *short* illness, and so far *happily*, as having been thereby spared the pain of a lingering death. But let us understand it even to mean that he died *suddenly*, and in the possession of his ordinary good health; yet this observation must still imply that there was nothing in the circumstances of the event itself which could be considered a misfortune. But would that have been said

[p] i. 2. [q] xv. 33. [r] Dio, lxxx. 1, 2. Historiæ Aug. SS. Alexander Sev. 15: 26, 27: 31: 34: 51: 67, 68. Zosimus, i. p. 12. Cf. Clinton, Fasti Romani, ad A. D. 228. [s] xv. 33.

of the death of a man cut off, like Ulpian the præfect, in the vigour of his faculties, in the midst of his usefulness, and in the acme of his power and influence, by the act of his own soldiers? Could Athenæus possibly have spoken of such a death as a *fortunate* death?

There is another objection to this date of the Deipnosophistæ which we will mention also. It is related in that work[t] that, when Adrian was in Egypt along with Antinöus, a new kind of crown, made up of a variety of the lotus which resembled the rose, (λῶτος ῥοδίζων,) was presented to him, together with a copy of verses, by a contemporary poet called Pancrates; both which pleased the emperor so much that he made Pancrates a fellow of the Museum at Alexandria. Now Athenæus observes of this Pancrates, Ὃν καὶ ἡμεῖς ἔγνωμεν; and though he puts this observation into the mouth of Ulpian[u], we cannot hesitate to understand it as meant of himself, a Greek of Egypt, a native of Naucratis[w]. If so, Athenæus had known this Pancrates. Now Adrian and Antinöus were in Egypt together A. D. 127 to 128[x]; and the incident above alluded to must have happened in the same year as the death of Antinöus, which was an event of A. D. 128[x]. From this year to A. D. 228 the interval would be 100 years. What then could have been the age of Pancrates, when he was thus introduced to the notice of Adrian? or what that of Athenæus when he was writing his Deipnosophistæ? If Pancrates was 30 A. D. 128 and Athenæus was 40 A. D. 228, Pancrates must have been 90 when *he* was born. But if Athenæus was writing his work A. D. 198 or 199, and about forty at that time, he might have seen and known Pancrates, who would be 60 when he was born: especially if *he* was really more than 40 A. D. 198 or 199, and Pancrates was less than 30 A. D. 128. Suidas describes Athenæus as Γεγονὼς ἐπὶ τῶν χρόνων Μάρκου: and that in the idiom of Suidas means either that he was born in his reign or that he flourished in it.

iv. No one however can have read Athenæus and not be aware how pointedly he criticises both Plato and Xenophon[y],

[t] xv. 21.
[u] Ibid. 19–21.
[w] iii. 2: vii. 60: xi. 61.
[x] Cf. our Dissertations, on the Principles, &c. iv. 104 sqq. Fasti Catholici, iv. 409: 435 sqq.
[y] v. 55—60.

for the disregard which they had shewn in their Dialogues to chronological propriety and to the truth of history; supposing persons to have met on those occasions and to have taken part in those discourses who could not have been contemporaries: and introducing other anachronisms, inconsistent with truth and the matter of fact. It is not credible therefore that in a Dialogue of his own he would lay himself open to the same kind of censure by the commission of the same kind of fault.

Now among the guests at this banquet a Galen is one[z]; and a Galen described as a physician and a native of Pergamus: which can leave no doubt that the person intended by that name must have been the celebrated Galen. When then did Galen die? He was born A. D. 130; and according to Suidas he was only 70 at his death. If so, he was dead A. D. 200 at the latest. How then could *he* have been present at a banquet, the time of which was laid in A. D. 228? or what anachronism of Plato's or Xenophon's could have been more flagrant than that? It will be seen indeed that Athenæus has critically avoided this absurdity, by actually dating his banquet in the last year, or last but one, of the life of Galen; at a time too when, as it may be proved even from his own testimony, he was himself at Rome and not at Pergamus: though he appears to have died at Pergamus.

For, lastly, the host of these Deipnosophists is supposed to have been a rich Roman nobleman, a patron of letters, of the name of Larensius[z]; concerning whom however Athenæus tells us further only that he was a lineal descendant of the learned Varro[a]; that he had been appointed some time or other by the emperor Marcus to the care of the *θυσίαι* and *ἱερὰ*[b], i. e. had been created by him one of the College of Pontiffs: and that not long before the time of this banquet he had been serving the office of fiscal procurator in Mysia[c]; *Ἐπιτροπεύων ἐν Μυσίᾳ τοῦ κυρίου αὐτοκράτορος.* The occasion of this observation was the mention of the bird called *τέτραξ* (a species of grouse or cock-of-the-wood); which was first produced in its natural state, in a cage, for the inspection of the guests, and was presently after served up to them at table as a dish. If then there was any historical truth and

[z] i. 2. [a] iv. 51. [b] i. 4. [c] ix. 58.

propriety in all this; this banquet at Rome must have been going on very soon after Larensius' return from Mysia.

Severus became sole emperor, after the defeat and death of Albinus, on the xi Kal. Martias[d], February 19 Roman, A. D. 197, as Mr. Clinton dates the year. The next year, A. D. 198, he associated his son Caracalla with himself as Augustus; having previously declared him Cæsar A. D. 196[e]. After A. D. 197 therefore Larensius must have spoken of himself as Ἐπιτροπεύων τῶν κυρίων αὐτοκρατόρων, not Τοῦ κυρίου αὐτοκράτορος; meaning of course thereby the two Augusti, Severus and Antoninus Bassianus or Caracalla his son. This argument in our opinion is decisive that the procuratorship of Larensius could not have been later than A. D. 197; nor consequently the date of the banquet than A. D. 198.

ii. *On the real or the fictitious character of the Banquet of Athenæus.*

Among the other particulars of the proceedings at this banquet the following incident also is mentioned[f]: Τοιούτων οὖν ἔτι πολλῶν λεγομένων τότ' ἐξάκουστος ἐγένετο κατὰ πᾶσαν τὴν πόλιν αὐλῶν τε βόμβος καὶ κυμβάλων ἦχος ἔτι τε τυμπάνων κτύπος μετὰ ᾠδῆς ἅμα γινόμενος. ἔτυχε δὲ οὖσα ἑορτὴ τὰ Παρίλια μὲν πάλαι καλούμενα νῦν δὲ Ῥωμαῖα, τῇ τῆς πόλεως Τύχῃ ναοῦ καθιδρυμένου ὑπὸ τοῦ πάντ' ἀρίστου καὶ μουσικωτάτου βασιλέως Ἀδριανοῦ. ἐκείνην τὴν ἡμέραν κατ' ἐνιαυτὸν ἐπίσημον ἄγουσι πάντες οἱ τὴν Ῥώμην κατοικοῦντες καὶ οἱ ἐπιδημοῦντες τῇ πόλει.

It appears plainly from this allusion that the scene of the banquet must have been laid at Rome[g]. It appears from it also that one of the days on which it was going on, or supposed to be going on, there must have been the Parilia, April 21 in the calendar at this time; the proceedings of which day, including this incident, are recorded in this eighth book in particular.

It would be difficult to assign a reason why this allusion to the Parilia, and to the ceremonies with which it was celebrated in the time of Athenæus, should have been introduced into the account of his banquet just at this juncture, except as an historical fact; as something which actually occurred at this moment. It stands independently of every

[d] Spartian, Severus, 11.
[e] Clinton, In Anno.
[f] viii. 63.
[g] Cf. i. 4: iii. 94: viii. 1: i. 36: iii. 53.

thing which precedes it in this book; and almost equally so of every thing which follows it: though it must be admitted that a turn in the conversation of the guests is produced by this incident; and for a page or two after the topics of discourse among them appear to have been suggested or determined by it: which however was only natural, and could scarcely have failed to be the effect of a real occurrence of that kind just at the same conjuncture.

Whether indeed the whole of this Δεῖπνον of Athenæus was real, or the whole fictitious, appears to be alike open to question. To suppose it altogether and literally a real account would be liable to great objections; and yet to suppose it to have been altogether imaginary would be equally so. The scene of the banquet at least was a reality; the host of the Deipnosophists is characterized by his relation to Varro, to the pontifical college, to the emperors past or present, only as a real person could have been. Many of the guests are known to have been real historical characters, who lived and flourished about this time; and those who are so known as contemporaries may vouch for their fellow guests, as real and contemporary characters, though not otherwise known to have been so. The coincidence recently adverted to, with respect to Galen in particular, that he was not only a real character, and alive at this time, but actually present at Rome in this *one* year, A. D. 198, though not before or after, so far as we know, is a very strong ground of inference that, whether every thing related in the Deipnosophistæ is literal and historical or not, there was some foundation for it in point of fact; that a banquet of this kind must have been actually celebrated at Rome at or about this time: the guests at which must have been such as are here supposed, the most learned and most eminent in various ways who could have been got together on such an occasion; and that the discourses which past, or the incidents which happened, in the course of it, were such in the main as are here described.

The allusion to the Parilia and the manner in which the mention of that festival comes in would thus be explained. But it would also be implied thereby that the banquet must have been going on upon April 21 Roman at the time; and that would be a conclusion of some importance to our pur-

pose, which is the illustration of the calendar. At least, it is to be presumed that an author like Athenæus, who laid so much stress on the observation of historical truth and consistency even in the circumstances of a fictitious composition, and one who condemned the violation of decorum in that respect so strongly in others, would not be guilty of it himself, by introducing an allusion to the Parilia in the account of his banquet at a particular point of time, if he did not intend it to be understood thereby that his banquet was then going on.

iii. *On the distribution of the Deipnosophistæ.*

With regard to the plan and distribution of the work itself, supposed to be the account of a banquet which was more or less real; it is clear that it must have extended over several days in succession[h]: though over how many cannot be exactly determined. Nor would it be easy to say in what manner the particulars recorded of the banquet in general were to be distributed among these different days; or what books with their contents must have belonged to each. There seems reason however to conclude that two of them, the seventh and the eighth, could have comprehended only one day between them: and the ninth and the tenth only one or two days more[i]. If so, the common date of the seventh and the eighth books must have been April 21; that being the date of the eighth, determined by the allusion to the Parilia.

If there is any objection to this conclusion it seems to be due to an allusion in the ninth book, which comes in where the subject of discourse happened to be the Κολοκύντη, Cucurbita, or Gourd[k]: Χειμῶνος δὲ ὥρᾳ ποτὲ κολοκυντῶν ἡμῖν περιενεχθεισῶν πάντες ἐθαύμαζον, νεαρὰς εἶναι νομίζοντες..... ἐθαυμάζομεν οὖν τὰς κολοκύντας μηνὶ Ἰανουαρίῳ ἐσθίοντες. χλωραί τε γὰρ ἦσαν καὶ τὸ ἴδιον ἀπεδίδοσαν τοῦ χυμοῦ. It appears to be implied hereby that the particulars of this ninth book must have been passing in the Roman month of January. But the truth is that Athenæus was speaking here in his own person; and from his use of the adverb of time ποτὲ (*for-*

[h] viii. 1: xiv. 2: cf. v. 65: xiv. 85: xv. 57. 61. [i] Cf. vii. 1. 140: viii. 2: 51. 69: ix. 1. 75: x. 20. 89: xi. 1. 5. 9. 120. [k] ix. 14.

merly, once upon a time) it is clear that he meant to allude to this production of gourds in the month of January, whether real or fictitious in itself, as something which was to be supposed to have happened at some former time and on some former occasion; as something, which is referred to here *obiter*, and merely because of its connection with the actual subject of conversation at the time, the various species of esculent plants, or potherbs, which the Greeks called Λάχανα[l]. The Roman month of February also is mentioned in the course of the work[m]; but not so as to authorize any conclusion from that fact respecting the time of the allusion to it.

iv. *State of the Calendar at the date of the Deipnosophistæ.*

To come therefore to the point to which these inquiries are intended to be preliminary. In the seventh book the following incident is mentioned[n]: Ἐπικούρειος δέ τις εἰκαδιστὴς τῶν συνδειπνούντων ἡμῖν ἐγχέλυος παρατεθείσης Πάρεστιν ἔφη ἡ τῶν δείπνων Ἑλένη· ἐγὼ οὖν Πάρις ἔσομαι· καὶ χεῖρας μηπώ τινος ἐκτετακότος ἐπ' αὐτὴν ἐπιβαλὼν ἐψίλωσε τὸ πλεῦρον (ἀγαγὼν) εἰς ἄκανθαν. In the designation of this Epicurean by the name of an Εἰκαδιστὴς, Athenæus alludes to a custom of the Epicurean philosophers, which they had observed ever since the time of the death of their founder Epicurus; that of meeting and feasting together on the Εἰκάδες (the 20th) of every month, in honour of his memory: a rule of theirs which we hope to illustrate more at large on a future occasion.

On this principle, if this banquet was going on upon one of these Εἰκάδες of the Epicureans, it would have been a breach of propriety, and inconsistent with their rule, to suppose one of that sect present on such a day, and taking part in this banquet, and notwithstanding to call him an Εἰκαδιστὴς or Twentyman. And though these meetings of the Epicurean Ikadistæ were regulated at first by the lunar calendar of the Athenians; at this time, when the Attic calendar was solar, and the lunar calendar itself had in a great measure fallen into desuetude, they would be regulated by the Attic solar calendar. Let us assume then that the date of the seventh book was April 21 Roman A.D. 198. In that year, the Kalends of April fell on March 29: and therefore

[l] ix. 7—14. [m] iii. 53. [n] vii. 53.

April 21 on April 18. In the solar Attic calendar of the first and genuine Type, that of A. D. 127, Munychion coincided with April. The first of Munychion was the first of April in every year of the cycle of leap-year alike. On this principle Munychion 18 A. D. 198 coincided with April 18 A. D. 198; and therefore with the Palilia, April 21 Roman, the same year. On the 21st of April Roman therefore U. C. 951 an Epicurean and an Εἰκαδιστὴς might have been present at such a banquet as this of the Deipnosophistæ, without any breach of his rule.

SECTION XX.—*On the relation of the Roman to the Julian Kalends A. D.* 218. *Testimony of the Geoponica.*

The collection of rules and observations, known to the learned by the name of the Geoponica, is a compilation from various authors, (some earlier some later than the Christian Æra,) who had treated De Re Rustica. With respect to the author of the compilation itself, it has been made a subject of controversy; into which it is not necessary that we should enter for our purpose at present. We concur in the opinion which attributes it to Cassianus Bassus surnamed Scholasticus [o].

Vindanius Anatolius indeed is recognized by Photius [p] as the author of a collection too, the description of which given by him corresponds to the character and constitution of the Geoponica. But that was in *twelve* books, the Geoponica are in twenty; the author of that was a native of Berytus (in Phœnicia): the author of the Geoponica was certainly not of Phœnicia. He frequently speaks in his own person; or mixes observations of his own with those which he is quoting from others. There are two instances of this kind [q]; in which he alludes to himself, and to the place of his birth, the Μαρατώνυμον χωρίον, where he had possessions: and since it appears also [r] that he wrote at Constantinople, this quarter was probably near Constantinople. From the title prefixed in the first of these instances, we collect that his name was Cassianus. The work itself is dedicated to an emperor of the same name as Constantine the founder of Constantinople, and

[o] Prolegomena, (Needham) i—vii.
[p] Codex 163, p. 106, 107.
[q] v. 6. p. 111: x. 2. p. 240.
[r] Procemium.

reigning in the same city; but a different person from him, and if this author is to be believed superior to him in the greatness of his actions[r]. We incline to the opinion that Constantine Pogonatus is hereby intended, (A. D. 654 to 685,) rather than Constantine Porphyrogennetus, A. D. 911–959.

Beyond these intimations the author of this compilation furnishes us with no clue to the discovery of his own time; though from the comparison of two passages in it[s] we may conclude that the winter solstice must then have been falling, or supposed to be falling, on December 20. In the title prefixed to the first the extract which follows is referred to Florentinus; but on comparing it with the second it appears that it is really to be referred to the author himself. This date of the winter solstice supposes that of the vernal equinox March 19; a date admissible in the sixth or seventh century but not in the ninth or the tenth. Whosoever this author was, there can be no doubt that he was a Christian.

The relation of the Roman to the Julian calendar in the time of some of the authorities quoted in this compilation may be inferred from their own testimony. We propose to shew this in one instance, that of an author of the name of Florentinus, concerning whose age we hope to speak by and by. But we must begin with some observations on the natural solar, or sidereal, calendar, which he appears to have followed; viz. that of Varro.

i. *On the Parapegma of Varro.*

That Terentius Varro was the author of a Parapegma, a tropical and sidereal calendar, similar to that of Geminus, or Columella, or Ptolemy, or Claudius Thuscus, appears from Pliny; and in particular from Lydus: in whose work, De Mensibus, imperfect as it is, many dates taken directly from this Parapegma of Varro's, and declared by themselves to have been so taken, with their significations, (Ἐπισημασίαι,) are still to be met with. And this calendar of Varro's might have agreed in general with that of Cæsar; each having been compiled and published for the same climate, that of Rome and the neighbourhood of Rome, and each nearly at the

[r] Procœmium. [s] ix. 4. 214: x. 2. 240.

same time: and yet it could not have been altogether the same with Cæsar's, or it would not have been so often referred to as something peculiar to Varro. The details too of this Parapegma are recoverable even at present to a certain extent. But we must begin with considering the divisions of the natural year, made by Varro; and their relation to the sphere in each instance, according to him: i. e. the dates of the solar ingresses recognized and adopted by him. And these we can obtain from his work De Re Rustica.

ii. *Sphere of Varro, or Dates of the Solar Ingresses, adopted by him.*

Dies primus est veris in Aquario, æstatis in Tauro, auctumni in Leone, hiemis in Scorpione. cum uniuscujusque horum quatuor signorum dies tertius et vicesimus quatuor temporum sit primus; efficitur ut ver habeat dies xci, æstas xciv (aliter xcv), auctumnus xci (al. xcii), hiems xxcix (al. xxcviii[t].)

The readings of these numbers vary; but it will be seen that these must be the most genuine and authentic. It appears then that Varro dated the ingress of the spring quarter in the 23rd degree of Aquarius, that of the summer quarter in the 23rd degree of Taurus, that of the autumnal in the 23rd degree of Leo, and that of the winter quarter in the 23rd degree of Scorpio; and that he made the length of the spring quarter 91 days, that of the summer quarter 94 days, that of the autumnal quarter 91 days, and that of the winter quarter 89 days. The calendar date therefore of any one of these ingresses, according to him, being known, it must be easy to assign the rest; and to arrange his scheme of the natural year accordingly.

Now there are two dates of this description, according to Varro, about neither of which can there be any uncertainty. One is the date of the vernal ingress: the other is that of the autumnal. i. The calendar date of the spring quarter according to Varro was the vii Idus Februarias, February 7 Roman. The sequel of the passage just quoted proceeds: Quæ redacta ad dies civiles nostros qui nunc sunt dant primi verni temporis ex a. d. vii Idus Februarias. There is no

[t] De Re Rustica, i. 28. 189.

variation in the reading of this date. As the proper date of the Veris initium, according to Varro, it is one of the most authentic any where on record. It is repeatedly recognized by Florentinus in the Geoponica; and as Varro's. ii. The calendar date of the autumnal quarter, according to Varro, was that of the Fidiculæ occasus matutinus. This may be collected from Pliny[u]: Varro a Fidicula incipiente occidere mane determinat: quod vult initium esse. And it may be further collected[w] that his date of that phenomenon was the same as Cæsar's, iii Idus Sextiles, August 11 Roman: since, in all these references Pliny opposes what he calls the *Vera Ratio*, (i. e. the true date of the phenomenon, the vi Idus Augusti, August 8 Roman,) not only to Cæsar's but to Varro's date thereof.

On these two data then we may construct an accurate scheme of the Tropical and Sidereal calendar of Varro; though it must be admitted that the text of his work De Re Rustica, as it stands, and in the sequel of the passage quoted supra, gives the dates of the four ingresses as follows.

i Veris Initium	vii Id. Februarias	February 7	Roman.
ii Æstatis —	iv Id. Maias	May 12	—
iii Auctumni —	vii Id. Sextiles	Sextilis 7	—
iv Hiemis —	iv Id. Novembres	November 10	—

Nor are there any various readings in these instances of much importance, except in the case of the third, that of the beginning of the autumnal quarter; for which the true date, *a. d. tertium Idus*, occurs among the various readings, as well as that in the text. But these dates are not consistent either with the lengths assigned to the different quarters, or with the point or degree of the proper sign from which each was reckoned, by Varro. For that was in every instance the 23rd: nor can any dates of the ingresses, or any lengths of the quarters, be those of the sphere of Varro in particular which offend against this fundamental assumption. His own scheme, as referrible to and determinable by this test, must have stood as follows:

[u] H. N. xviii. 69. § 4. 243. [w] Ibid. 68. § 2. 231: cf. 228: 243: 59: 194.

Solar Ingresses, and quarters of the natural year, according to Varro.

i. *Spring quarter, 23° of Aquarius to 23° of Taurus.*
91 *days.*

		Roman.	Length.	Veris Initium.	Roman.
i	Sol in Aquario	Jan. 16	30	23° Aquarii	Feb. 7
ii	.. Piscibus	Feb. 15	30	23° Piscium	Mar. 9
iii	.. Ariete	Mar. 17	31	23° Arietis	April 8

ii. *Summer quarter, 23° of Taurus to 23° of Leo.*
94 *days.*

		Roman.	Length.	Æstatis Initium.	Roman.
i	Sol in Tauro	April 17	31	23° Tauri	May 9
ii	.. Geminis	May 18	32	23° Geminorum	June 9
iii	.. Cancro	June 19	31	23° Cancri	July 11

iii. *Autumnal quarter, 23° of Leo to 23° of Scorpio.*
91 *days.*

		Roman.	Length.	Auctumni Initium.	Roman.
i	Sol in Leone	July 20	31	23° Leonis	Aug. 11
ii	.. Virgine	Aug. 20	30	23° Virginis	Sept. 11
iii	.. Libra	Sept. 19	30	23° Libræ	Oct. 11

iv. *Winter quarter, 23° of Scorpio to 23° Aquarius.*
89 *days.*

		Roman.	Length.	Hiemis Initium.	Roman.
i	Sol in Scorpione	Oct. 19	30	23° Scorpionis	Nov. 10
ii	.. Sagittario	Nov. 18	29	23° Sagittarii	Dec. 10
iii	.. Capricorno	Dec. 17	30	23° Capricorni	Jan. 8

On this principle we obtain, according to Varro, the beginning of the Spring vii Idus Februarias, February 7 Roman; the beginning of the summer vii Idus Maias, May 9 Roman; the beginning of the autumn iii Idus Sextiles, Sextilis or August 11 Roman; and the beginning of winter the iv Idus Novembres, November 10 Roman. Nor do these differ from those which

appear in his text at present, except in the date of the summer quarter, the iv Idus Maias, May 12 Roman, and that of the autumnal, the vii Idus Sextiles, August 7 Roman*.

* Pliny [1]: Rubigalia Numa constituit anno regni sui xi°, quæ nunc aguntur a. d. septimum Kalendas Maii (April 25 Roman)..... hoc tempus Varro determinat sole Tauri partem decimam obtinente, sicut tunc ferebat ratio .... itaque iidem Floralia quarto Kalendas ejusdem (Maii) instituerunt urbis anno DXVI .... hunc diem Varro determinat sole Tauri partem quartam decimam obtinente.

The vii Kalendas Maias in the Pompilian or the Decemviral calendar denoted April 24 Roman: and the iv Kalendas Maias April 27 Roman. In explanation of these dates of Varro for the 10° of Taurus and for the 14° respectively, we observe i. That, if he assumed the 1° of Taurus in his own time April 17 = 16, then, on the implicit reception of the doctrine of the alternate recession and precession of the cardinal points one degree or one day in 80 years, for the time of Numa (not less than 80 × 8 or 640 years before his own) he must have assumed it April 16 + 8, or April 24. And that being reckoned the 1° of Taurus the 10° would be supposed to be May 3.

Now May 3 being assumed as the date of the Rubigalia, and as vii Kal. Maias, April 24 Roman; the Kalends of April on that principle would be assumed as April 10 .... and in the Decemviral calendar April 10 was the stated date of the Kalends of April in the fourth year of the cycle. We have seen from the calculations of Tarutius and Varro supra [2] that they considered themselves at liberty to carry back the proper Type of the Decemviral calendar even to the epoch of the Foundation: and that being done accordingly, cycle iii. 4 of this type, reckoned from the Palilia B. C. 753 U. C. 1 of Varro, would be found to coincide with B. C. 702 U. C. 52 of Varro. We have but to suppose that Varro reckoned that to be the xith of Numa; and we shall explain his dates of the 24th of April Roman and the 10° of Taurus. And it is evident that he might so reckon it; for the first of Numa on that principle must have been supposed U. C. 42 B. C. 712: a very possible date, and only one year later than the truth, U. C. 41 of Varro B. C. 713.

ii. With regard to the other date of iv Kalendas Maias, April 27 Roman in the Decemviral correction, and the 14° of Taurus, there must be some mistake in Pliny's account of it. The necessity of the case compels us to suppose that instead of the 14° of Taurus he intended to have written or should have written the 14° of Gemini. For if Varro's date of the institution of the Floralia was truly U. C. 516 [3] B. C. 238, it corresponded to cycle ix. 19 of the Decemviral correction; in which the stated date of the Kalends of April was May 6: and therefore the stated date of the iv Kal. Maias, April 27 Roman, was June 1. Now the ingress

1 *H. N.* xviii. 69 § 3. p. 237, 238. 2 Vol. iii. 188. 3 See Vol. ii. 126.

It follows from these premises that if Varro adopted the received division of the sphere in Octavis Partibus he must have assumed the cardinal points as follows:

Cardinal points according to Varro.

			Roman.
i Vernal equinox	8° of Aries	ix Kalendas Apriles	Mar. 24
ii Summer solstice	8° of Cancer	vi Kalendas Julias	June 26
iii Autumnal equinox	8° of Libra	vi Kalendas Octobres	Sept. 26
iv Winter solstice	8° of Capricorn	ix Kal. Januarias	Dec. 24

On this principle too his spring quarter, dated from the vernal equinox, would have 94 days; his summer quarter, dated from the summer solstice, would have 92; his autumnal quarter, dated from the autumnal equinox, would have 89; and his winter quarter, dated from the winter solstice, would have 90 days. The interval in the third of these instances is virtually confirmed by his own testimony [x]; where he reckons it to be 91 days from the autumnal equinox to Post Brumam, sc. *confectam*, December 26; two days after Dec. 24.

into Gemini in Varro's time being dated May 18 = 17, 160 years before his time (cir. B. C. 76) it would be assumed May 19 .... and that being reckoned the 1° of Gemini U. C. 516 B. C. 238, June 1 would be the 14°.

When Pliny spoke of the 14° of Taurus in this instance he was probably thinking of the date of the Floralia in his own time April, 28 = 29: which was as nearly as possible the 14° of Taurus in the sphere of his time, if not critically so; as it would be, if reckoned from April 16. But he could not have reflected that according even to his own account of the institution and of the final end of these two feasts, the Rubigalia and the Floralia, to suppose the latter to have been originally only four days later than the former must have been absurd. The final end of the Rubigalia was to avert the mildew from the flowering corn, that of the Floralia Ut omnia bene deflorescerent. The former was consigned in the calendar to the earliest beginning of the natural process of florification, the latter to the end of it: between which Varro in particular made a month's interval [4]. He might therefore very consistently date the one in the 10° of Taurus, and the other in the 14° of Gemini; but it would have been absurd to make only *four* days' interval between them, by dating one in the 10° and the other in the 14° of Taurus.

4 See our Fasti, Vol. ii. 222, note.

x De Re Rustica, i. 34. 198.

iii. Eightfold division of the year according to Varro.

And hence it is also in our power to recover a further division of the natural year into eight parts, made by Varro in imitation of a similar distribution of it, the example of which was first set by the Greeks; though the dates of each of these and the lengths assigned to them respectively in his text, as it stands at present[y], labour under great corruption of the numbers.

This division set out from the same point in the year or in the sphere as that of the four quarters, the Ἀρχὴ ἦρος or Flatus Flavonii; and according to the rule and prescription of almost all the Parapegmata of antiquity the date of this phenomenon, assumed by Varro also, was as nearly as possible *midway* between the winter solstice and the vernal equinox: 45 days after the former and 45 days before the latter.

Division of the natural year into eight parts, according to Varro.

	Dies	Var. Lect.	Roman.
i A Favonio ad Æquinoctium vernum	xlv	xl : xlii	Feb. 7 to March 24
ii Ab Æquinoctio verno ad Vergiliarum exortum	xlvi	xliv	Mar. 24 to May 9
iii A Vergiliarum exortu ad Solstitium	xliix	xlix	May 9 to June 26
iv A Solstitio ad Caniculæ signum	xxviii	xxix : xxvii	June 26 to July 24
v A Canicula ad Æquinoctium auctumnale	lxiv	lxvii	July 24 to Sept. 26
vi Ab Æquinoctio auctumnali ad Vergiliarum occasum	xlv	xxxii	Sept. 26 to Nov. 10
vii A Vergiliarum occasu ad Brumam	xliv	lvii	Nov. 10 to Dec. 24
viii A Bruma ad Favonium	xlv		Dec. 24 to Feb. 7

These numbers differ indeed from those of the text of Varro; but they are such in each instance as the necessity of the case requires. In the fourth division, we read xxviii, not xxix or xxvii, as the interval from the summer solstice to the Caniculæ signum; and that gives the latter July 24.

[y] De Re Rustica, i. 28. 189.

It is here to be observed that the dates in the last column are the Roman of Varro's time; but that the relation of the Roman to the Julian Kalends, at the date of his Parapegma, was such that the former were *one* day behind the latter. On this principle July 24 Roman of his time denoted July 23; and it may be collected from Pliny[z] that Varro's date of the phenomenon which he called Caniculæ signum could not have differed materially from Cæsar's, x Kalendas Augusti, July 23 Roman: and that being given by Pliny as Cæsar's date of the Prodromi, which preceded the Ortus Caniculæ by a few days more or less, July 24 Roman might be Varro's date of the latter.

This date being rightly assumed, the next interval from the Caniculæ signum to the autumnal equinox (Sept. 26 Roman) must have been 64 days according to Varro, not 67. And if his date of the Vergiliarum occasus was truly November 10, the sixth interval, from the autumnal equinox to the Vergiliarum occasus, must have been 45 days, not 32; though 32 days from Sept. 26 would bring us to October 28: and that is a date of the Vergiliarum occasus, v Kalendas Novembres, which appears in Columella[a]. But Sept. 26 in Varro = Sept. 25: Oct. 28 in Columella = Oct. 29; and from the former to the latter the interval must have been 34 days. The sixth interval being rightly determined, the seventh must be corrected accordingly; 44 days instead of 57. The eighth interval must have been the half of 90 days, that is, 45 days; December 24 to February 7.

iv. *Calendar or Parapegma of Florentinus, in the Geoponica.*

Having dwelt thus far on the Parapegma of Varro, and on the restoration of its genuine dates, we shall now proceed to apply our conclusions to the illustration of the Geoponica.

One of the authors whose name often occurs in this compilation is Florentinus; and for what might be collected with respect to his personal history we refer to the Prolegomena of Needham[b]. The eleventh book of his Georgica is referred to in the Geoponica in an extract from Africanus; by whom the learned have with reason concluded that Julius Africanus

[z] H. N. xviii. 68 § 2. p. 230, 231. [a] xi. ii. § 78. p. 759. [b] P. xi.

was most probably intended [c], the Christian chronologer so called; author also of a miscellaneous work entitled Κεστοὶ, in *nine* books, or in *fourteen*: which treated of various subjects, and among the rest of agriculture. Africanus' age is known. He was consul ordinarius U. C. 989 A. D. 236. If Florentinus was quoted by him, he must have been older than A. D. 236 at least.

In the passage so quoted from him by Africanus [d], mention occurs of a Marius Maximus; whom Needham conjectures to have been the Urbis Præfectus of that name, appointed by Macrinus, A. D. 218, in the room of Adventus [e]. And that might very possibly be the case. There was also an historian of these times, a Marius Maximus too; whom the writers in the Historia Augusta, from Adrian to Alexander Severus, frequently refer to [f]: from which it seems to be only a natural inference, that he brought his accounts down to the reign of Alexander Severus, but no further; and therefore most probably wrote under him. This Marius Maximus and the Urbis Præfectus of Macrinus were very likely to be the same individual. If Florentinus alluded to either of them as his contemporary; *his* time too must confine on the reign of Macrinus A. D. 217 and 218. From his frequent references to Bithynia [g], it might be supposed that he was himself of Bithynia; yet it would not follow from that fact that he could not have written his Geoponica in Italy, nor have made use of a calendar which was as much adapted to the parallel of Italy as to that of Bithynia, or vice versa. In fact between these two parallels the ancients made little or no distinction; the longest day was assumed at 15 hours for both: and in reality there was little or no distinction. The latitude of Rome for instance was 41° 54′ 8″ N.; that of Heraclea on the Pontus in Bithynia was 41° 17′ 8″ N.

Now it plainly appears from the testimony of these extracts in the Geoponica that the digest of the natural and of the civil year, adopted by this author, was Varro's; the Para-

[c] Prolegomena, v-vii.

[d] Geoponica, ix. 14.

[e] Dio, lxxviii. 14: 13: 36: lxxix. 2. Dio observes (13) here that Marius was appointed Urbis Præfectus before he had yet been consul. U. C. 976 A. D. 223, L Marius Maximus occurs in the Fasti as Consul ii.

[f] Cf. Adrian, 2: 12, &c.

[g] Geoponica, iv. 1–3: v. 1: 7: cf. v. 32: 36.

pegma of which he made use was Varro's. Varro's cardinal date, the beginning of the spring quarter, the Flatus Favonii, is recognized by him more than once: Χρὴ δὲ εἰδέναι ὅτι μετὰ ἰσημερίαν φθινοπωρινὴν καλὸς γίνεται ὁ ἐγκεντρισμὸς μέχρι τροπῶν χειμερινῶν, καὶ μετὰ ζεφύρου πνοάς· τουτέστιν ἀπὸ ζ' τοῦ Φευρουαρίου μηνὸς ἕως τροπῶν ἐαρινῶν[h]— Δεῖ δὲ ὑποτιθέναι τὰ ὠὰ μάλιστα τὰ ἀπὸ ζεφύρου πνοῆς τικτόμενα, μέχρι μετοπωρινῆς ἰσημερίας· τουτέστιν ἀπὸ ζ' Φευρουαρίου ἕως κβ' (κς') Σεπτεμβρίου[i]. It appears however most clearly from the first chapter of the Geoponica; taken from Florentinus, and exhibiting a scheme of the divisions of the natural year, all professedly derived from Varro: Οἱ τοίνυν πλεῖστοι, καὶ πρό γε πάντων Βάρων ὁ Ῥωμαῖος, ἀρχὴν ἔαρος εἶπεν ὅταν ὡς ἐπὶ τὸ πλεῖστον ζέφυρος ἄρχηται πνεῖν, ὅπερ ἐστὶ τῇ πρὸ ἑπτὰ εἰδῶν Φευρουαρίων, ἡλίου ἐν Ὑδροχόῳ ὄντος καὶ τριῶν ἢ πέντε μοιρῶν γενομένου, τουτέστι τρεῖς ἢ πέντε ἡμέρας ἐν τῷ ζωδίῳ ἔχοντος[k].

That this statement is agreeable to what we have shewn of the genuine details of the sphere of Varro, in every respect but that of the sun's place in Aquarius, is evident. In that *one* respect it differs materially not only from our conclusions but from Varro's own testimony: according to which the sun's place on February 7 in his calendar was the 23° of Aquarius, not the 3rd or the 5th. We cannot hesitate therefore to pronounce the text of Florentinus in this instance corrupt; nor to conclude that the origin of the corruption must have been some confusion between the genuine number, written in brief, κ'κ̀,γ' or γ'κ̀,κ', and ϵ'κ̀,γ' or γ'κ̀,ϵ': which would be very possible. The text of Florentinus then must have stood originally, Ἡλίου ἐν Ὑδροχόῳ ὄντος, καὶ γ' κ̀, κ' μοιρῶν γενομένου, τουτέστι γ' κ̀, κ' ἡμέρας ἐν τῷ ζωδίῳ ἔχοντος: and so read it agrees exactly with Varro himself.

The divisions of the year, beginning with this epoch, and taken from Varro, according to the text of Florentinus in its present state, are as follows:

i. Veris Initium	vii Id. Febr.	Feb.	7 Roman
.. Finis	Nonis Maiis	May	7 ..

[h] x. 75. p. 291. [i] xiv. 7. p. 380, 381. [k] i. 1. p. 3, 4.

ii. Æstatis Initium	viii Id. Maias	May	8	Roman
.. Finis	vii Id. Aug.	Aug.	7	..
iii. Auctumni Initium	vi Id. Aug.	Aug.	8	..
.. Finis	v Id. Nov.	Nov.	9	..
iv. Hiemis Initium	iv Id. Nov.	Nov.	10	..
.. Finis	viii Id. Feb.	Feb.	6	..

The first and the last of these dates are genuine; agreeing exactly with Varro's. The intermediate ones must be corrected to make them the same with his; the Æstatis initium by vii Idus Maias May 9; the Auctumni initium by iii Idus Aug. August 11. How these numbers, though professedly taken from Varro's, came to differ from his, is another question. Corruptions in the readings of numbers are of very common occurrence in this compilation of Geoponica; and we have pointed out one clear instance of it in this very chapter. Errors might get into the text of Florentinus from faulty readings in that of Varro. There is something like a proof of that at the end of the chapter, where the date of the Ortus Pleiadum is given; which according to Varro was the epoch of the summer quarter: Πλειάδων δὲ ἐπιτολὴ τότε ἄρχεται γίνεσθαι ἀπὸ τῆς πρὸ τεσσάρων εἰδῶν Ἰουνίων. Ἰουνίων is here a manifest corruption for Μαΐων; and Πρὸ τεσσάρων εἰδῶν Μαΐων, May 12 Roman, was one of the various readings supra[l] of the epoch of Varro's summer quarter.

Again, Varro's date of the vernal equinox as we have seen[m] was the ix Kalendas Apriles, March 24 Roman; and that of the autumnal equinox was vi Kalendas Octobres, Sept. 26 Roman. Both these occur in Florentinus[n]: Καὶ τῶν ἰσημεριῶν ἡ μὲν ἐαρινή ἐστι τῇ πρὸ ὀκτὼ Καλανδῶν Ἀπριλλίων, τινὲς δὲ τῇ πρὸ ἐννέα· ἡ δὲ μετοπωρινὴ τῇ πρὸ ὀκτὼ Καλανδῶν Ὀκτωβρίων· ἤτοι (corr. ἢ τῇ) πρὸ ἕξ— Σπείρεται δὲ ἀπὸ ἰσημερίας ἥτις ἐστὶ πρὸ θ' Καλανδῶν Ἀπριλλίων[o]—Ὥρα δὲ ἀρίστη πρὸς τὸ ὑποτιθέναι τὰ ὠὰ ἡ τοῦ ἔαρος ἰσημερία, τουτέστιν ἀπὸ κδ' τοῦ Μαρτίου μηνός[p].

[l] Page 254. [m] Page 257. [n] i. 1. p. 4. [o] ii. 38. p. 64. [p] xiv. 7. p. 381.

Varro dated the summer solstice vi Kalendas Julias, June 26; and this too occurs in Florentinus, if his text is properly corrected: Τῶν δὲ τροπῶν ἡ μὲν θερινή ἐστι τῇ πρὸ ὀκτὼ Καλανδῶν Ἰουλίων (the common Julian date), κἄν τινες αὐτὴν (τῇ) πρὸ ἓξ νοννῶν εἶναι βούλονται[p]. The word νοννῶν here must be corrupt. Such a date for the summer solstice as the vi Non. Julias, July 2, at this point of time, would be unexampled. But read Τῇ πρὸ ἓξ αὐτῶν here, for Τῇ πρὸ ἓξ νοννῶν, and the date becomes vi Kalendas Julias, Varro's date of the summer solstice, June 26.

The date of the winter solstice has been lost out of this part of the text of Florentinus; nor does it occur in any other part of the Geoponica ascribed to him: though the ix Kal. Januarias for that phenomenon does occur[q]; and may be understood of its date according to the Quinctilii, contemporaries of Florentinus, or but a little earlier than he; since they flourished in the reign of M. Aurelius: by whom too the corresponding date for the vernal equinox, ix Kal. Apriles, is recognized also[r]; and apparently too that of ix Kal. Julias, for the summer solstice[s]; though this latter is doubtful. If Florentinus' date for the vernal equinox was March 24, it may be assumed that his date for the winter solstice must have been December 24. For the autumnal equinox indeed a date occurs[t] which was not Varro's, Sept. 22; but there is little question that the text is there in error: reading κβ′ for κϛ′, Sept. 26, the genuine date.

v. *Date of the Parapegma of Varro; and relation of the Calendar in the time of Florentinus to the Calendar in the time of Varro.*

The tendency of the preceding comparison of the dates of Florentinus with those of Varro is to impress us strongly with the conviction that the state of the calendar in his time must have been precisely the same as its state in that of Varro.

The date of the Parapegma of Varro may be safely assumed as the same in general with that of his work De Re Rustica; and as that was written in his 80th or his 81st year[u], and the

[p] i. 1. p. 4. [q] ii. 14: cf. x. 72. [r] ii. 40: cf. Dio, lxii. 5. 6. 7. Lampridius, Commodus, 4. A. D. 182. [s] iii. 6: cf. 1. [t] xiv. 7. 381. [u] i. i. § 1.

time of the first of its three books was that of the Feriæ Sementinæ[w] (consequently in the month of January[x]), we may date it more probably in January B. C. 36, than in January B. C. 35; because Varro himself was born B. C. 116*. But

* Jerome, Ad Ann. 1901. Ol. 166. 1. B. C. 116; M. Terentius Varro philosophus et poeta nascitur[1]: Ad Ann. 1989. Ol. 188. 1. B. C. 28; M. Terentius Varro philosophus prope nonagenarius moritur[2]. Pliny[3]: Cunctarer in proferendo ex his remedio nisi M. Varronem scirem lxxxviii vitæ anno prodidisse &c. If so, in the last year of his life. Valerius Maximus[4]: Terentius autem Varro, humanæ vitæ et spatio et exemplo nominandus, non annis quibus sæculi tempus æquavit quam stilo vivacior fuit. in eodem enim lectulo et spiritus ejus et egregiorum operum cursus exstinctus est. A. Gellius[5]: Tum ibi addit (in his Hebdomades vel De Imaginibus) se quoque jam duodecimam annorum hebdomadam ingressum esse (his 78th year, B. C. 39,) et ad eum diem septuaginta hebdomadas librorum conscripsisse. ex quibus aliquammultos quum proscriptus esset direptis bibliothecis suis non comparuisse. Cicero mentions[6] that Varro's house (his Fundus Cassinas) was occupied by Antony B. C. 47, when Cæsar was at Alexandria. But the occasion referred to by Varro himself was no doubt that of the proscription, B. C. 43; of which and of his escape in it we have an account in Appian[7].

Julius Cæsar, having projected the formation of a library at Rome on a large scale, gave Varro the charge of collecting it: Bibliothecas Græcas et Latinas quas maximas posset publicare (destinabat), data M. Varroni cura comparandarum et digerendarum[8]. This was B. C. 46 and 45; when Varro was at Rome[9]. His treatise De Lingua Lat. (in part still extant) must have been written between B. C. 46, when Cæsar celebrated his Alexandrine triumph, and B. C. 44, when the month Quinctilis received the name of Julius. It mentions the Camelopardalis by that name[10]; and it recognizes Quinctilis still under that name[11].

With regard to the date of his work De Re Rustica; he himself observes in it[12], Annus enim octogesimus admonet me ut sarcinas colligam antequam proficiscar e vita: though Pliny[13] dates it in his 81st year. If then we take Jerome's date of his birth, B. C. 116, that of this work, in his 80th year, must have been B. C. 37 or 36; and probably, (as the first book of it was written at the Feriæ Sementinæ, in January,) B. C. 36.

[w] i. ii. § 1.

[x] See Vol. ii. 41, note.

1 Thesaurus Temporum.
2 Ibid.
3 H. N. xxix. 18. § 4. pag. 388.
4 viii. vii. 3 De Studio et Industria.
5 iii. 10.
6 Oratt. xliv. Philippica, ii. 40. 103—41. 105.
7 Bell. Civ. iv. 47: cf. Dio, xlvii. 11.
8 Suetonius, Vita, xliv. 4.
9 See Cicero, Ad Att. xiii. 12. 13. (14. 16. 19.) 21–25: cf. xv. 5. 13. 25: xvi. 9. 12. Ad Fam. ix. 5, 6, 7, 8. Academicæ, i. i. § 1.
10 iv. p. 29: cf. Dio, xliii. 23. Pliny, H. N. viii. 27. Solinus, xxv. 20.
11 v. 60.
12 i. i. § 1.
13 H. N. xviii. 5. p. 28.

in either of those years the Kalends of January were falling on the same day, Dec. 31; and had done so for three years before, and continued to do so for two or three years after.

In like manner the age of Florentinus being assumed some time between the end of the reign of Severus, A. D. 211, and the end of the reign of Macrinus, A. D. 218; there were various years between those extremes in which the Kalends of January were falling on December 31 too: and from A. D. 218 to A. D. 224 they continued stationary at that date. The fact then, which we have been led to infer, (viz. that when Florentinus was compiling his Georgica, and no doubt making use of Varro's De Re Rustica also, the calendar of Varro was just as much adapted to his own time as to Varro's,) this fact we say must actually have held good; for which reason it appears that he made choice of it on purpose, and used it accordingly in his own work.

It follows that the true Julian exponents of the Roman dates in his time as well as in Varro's were less by unity than those of the same denomination in the Roman style; and we have only to state them, so understood, to see that for the time of Varro at least they must have been as nearly as possible the original dates of the Correction of Cæsar in their true Julian sense and meaning: and that for the time of Florentinus they would be only one day in excess of the truth[y].

Cardinal dates according to Varro, B. C. 36, *and according to Florentinus*, A. D. 218.

		Roman.	Julian.
i Vernal equinox	ix Kal. April.	March 24	March 23
ii Summer solstice	vi Kal. Julias	June 26	June 25
iii Autumnal equinox	vi Kal. Oct.	Sept. 26	Sept. 25
iv Winter solstice	ix Kal. Jan.	Dec. 24	Dec. 23

SECTION XXI.—*On the administration of the Roman Calendar in general from* A. D. 96 *to* A. D. 218.

It appears from the preceding review of dates in terms of the Roman calendar of the time being that, whereas the tendency of the Kalends of January from A. D. 75 forwards had been to rise from January 1 to January 3, (four days in all higher than their original Julian epoch of December 30,)

[y] Cf. supra, page 50.

their tendency from A. D. 100 forwards must have been altogether in the contrary direction; until at last they fell as low as December 28: i. e. even two days behind their proper seat in the Julian year at first.

Whether the old and inveterate dread of the Nundinal Incidence was continuing to operate for the whole of this interval, as before, in the absence of positive testimony to that effect we could not venture to say; but we incline to the opinion that it must still have retained more or less of its former strength, and must still have exerted more or less of its former influence. It was in fact the oldest and most rivetted of the prejudices of the Romans; and it was the last with which they parted. Yet, as we have observed [z], it had been discovered by the managers of the calendar that, could the course of things be so ordered that the Nundinal character of January in the first or in the second year of the cycle of leap-year should be *four*, the calendar might be regularly administered, subject to the proper law of the Julian Correction, for 18 years at a time in the former case, for 22 in the latter, without running the risk of this ominous Incidence.

It appears also to have been discovered that this affection of the Nundinal character of January might most easily be brought about at a given time by allowing this particular Incidence itself to take place *once* in a limited number of years, not less than 18 nor more than 23; and as the least of two evils it seems to have been determined at last to permit it under such circumstances, for the sake of this effect. Experience had proved that it could not be avoided perpetually by any precaution; and that it was better to admit it subject to certain restrictions, and at stated times, than to leave it to come in, as it had done before, at random: and it was obvious to suppose that there was much less to be apprehended from its ominous character itself, when thus foreseen and anticipated, than when it was found to be occurring unawares and unexpected. But, in order to the production of the desired effect under such circumstances, the Kalends of January on each of these occasions would require to be lowered, not to be raised; so that, if this rule was actually adopted as the principle of the administration from A. D. 100

[z] Supra, 135.

forwards, we must expect to find the Kalends of the Roman year *de facto* descending more and more on those of the Julian, the longer it was persisted in.

In the year of the death of Domitian, A. D. 96, the Nundinal character was 6; and the year was the first of the cycle of leap-year. Nerva came to the throne only September 18 Roman that year at the earliest; and the opportunity for making any change in the Nundinal character of the years of that cycle, A. D. 96 at least, was lost. This seems to have been the reason why the calendar was allowed to remain just as Domitian had left it in A. D. 96, down to A. D. 100, the fourth year of this cycle. *That* year however was open to correction. Its Nundinal character in the regular course of things would be unity. By permitting *that*, but making the year itself *common* instead of leap-year, the Nundinal character of the next year, A. D. 101, the second in the cycle of leap-year dated from the Kalends of March, would be rendered 4; and the calendar would be brought into a state in which it might be administered regularly down to A. D. 120. If this however was done; the Kalends of January must drop from January 3, their date A. D. 100, to January 2; which would thus be their date A. D. 101, and ever after down to A. D. 120.

A. D. 120, the Nundinal character in the regular course of things would again be unity; and by again permitting that, but again making the year itself common instead of leap-year, the character of A. D. 121, in the second year of the cycle of leap-year as before, would again be rendered 4: and the calendar would again be placed in a condition to go on regularly from A. D. 121 to A. D. 136. On this supposition the Kalends of January must again drop one day, from January 2 their date A. D. 120 to January 1 their date A. D. 121; and from A. D. 121 to A. D. 136 the normal date of January 1 Roman would be January 1 Julian also.

A. D. 136 the Nundinal character in the due course of the cycle would be 6; and, though this year was properly leap-year, yet by making it common the character of A. D. 137 would be rendered *unity*, and that of A. D. 138, in the second year of the cycle *exeunte* as before, would become *four*: and the calendar would be brought into a state in which it

might go on regularly down to A. D. 160. On this principle, the Kalends of January would again drop one day; from January 1 A. D. 136 to December 31 A. D. 136–137: and all through this period, from A. D. 136–137 to A. D. 159–160, their proper Julian date would be December 31. And we have seen proofs of that fact supra; especially from the testimony of Censorinus and of Appian.

A. D. 160 the Nundinal character would again be unity; and by allowing it to be so, but making the year itself common instead of leap-year, the character of A. D. 161 would be rendered *four:* and the calendar would again be in a condition to go on 20 years without any irregularity; i. e. down to A. D. 180. The Kalends of January however, in this case, must again descend one day in the Julian year, from December 31 to December 30; and their proper Julian date all through this period, from A. D. 161 to A. D. 180, would be December 30. It takes in the entire reign of Marcus Aurelius; and we have seen reason to conclude that such must have been the relation of the Roman to the Julian Kalends all through his reign; particularly from the calendar date of the Solis et Lunæ Sacrum [a].

The reign of Marcus Aurelius did not come to an end before March 17 Roman A. D. 180. There is no reason to suppose that whatsoever plan for the administration of the calendar had been previously laid down, and steadily observed until this time, would not be regularly continued for this year also; if the nature of the case required it. The Nundinal character of *this* year too was *unity*. By allowing that, and by making the year common instead of leap-year, the character of A. D. 181 would be rendered *four;* and the calendar would again be brought into a state in which it might have gone on for the same length of time as before, without requiring any extra correction. And all this time the Kalends of January, having dropped again one day A. D. 180–181, would have continued attached to December 29. But in this very year, after March 17 A. D. 180, Commodus succeeded to the throne; and the administration of the calendar passed into other hands. Not that even *he* could have made any change in the rule of administration A. D. 180;

[a] Supra, 237.

nor for three years later. But we have seen reason to conclude that the Kalends of January U. C. 940 must have been attached *de facto* to December 28 A. D. 186; and that could have been the effect of nothing but the omission of the regular leap-day A. D. 184.

Into the nature and date of the changes in the calendar actually made by Commodus we propose to inquire by-and-by. It is very observable however, that all the irregularities hitherto considered, to which the calendar had been previously subjected according to something like a definite and preconcerted plan of proceeding, had *one* tendency; viz. that of lowering the Kalends of January more and more from January 3, the highest point to which they ever attained, down to December 29, the lowest to which they ever fell back by virtue of the administration in question at least. If all this was deliberately and advisedly done; it is far from improbable that, besides the regulation of the Nundinal Incidence, another object which it had in view was to bring the civil year more and more into a state of agreement with the natural, especially in the dates of the cardinal points: and therefore that, after the Kalends of January had been brought down to December 29, (as they were by U. C. 934 A. D. 180,) it might have been intended that they should remain stationary at that point, possibly for a considerable length of time; at least until the difference between the mean natural and the mean or actual Julian year should have amounted to a day.

December 29 being one day lower than December 30, the original epoch of the Kalends of January in the Julian Correction; the calendar dates of the cardinal points in their proper Roman style must all have fallen back on their original Julian ones in the same proportion: that of the vernal equinox from March 23 to March 22; that of the summer solstice from June 22 to June 21; that of the autumnal equinox from September 22 to September 21; and that of the winter solstice from December 23 to December 22: changes however in their proper Julian sense and value, while they remained nominally the same in their own style, which would bring them only so much nearer to the truth in each instance at this epoch of A. D. 180, when the true vernal

equinox was actually falling on March 21 and 22, the true summer solstice on June 23 and 24, the true autumnal equinox on September 23 and 24, and the true winter solstice on December 21 and 22.

Now it would be absurd to suppose that, although the nominal dates of all these natural phenomena had continued the same in the calendar from B. C. 45 to A. D. 180, it could not have been discovered from observation only that their actual dates had not continued the same as at first; and that at this very time they were no longer capable of being represented by their nominal ones. Take the calendar date of the vernal equinox; viii Kalendas Apriles, March 25 Roman, in every state of the calendar alike from Julius Cæsar to Marcus Aurelius. In the time of Cæsar, March 25 Roman denoted March 23 Julian; and March 23 Julian was truly at that time the Julian date of the vernal equinox. But in the course of the 224 years from B. C. 45 to A. D. 180 the Julian date of this natural term must drop one day on March 23; though not yet two days complete: and to assume that this could have been the case so long before A. D. 180 and yet that no one could have been aware of the fact would be gratuitous; or rather absurd and unreasonable in the extreme. But in reality it would not only be gratuitous, but positively contrary to testimony. To suppose that March 22 was not known to be the true Julian date of the vernal equinox, long before A. D. 180, is contradicted by the testimony of Ptolemy, De Apparentiis, A. D. 137. It is contradicted by that of Apuleius, A. D. 141. It would be confuted by that of Anatolius, A.D. 277, and by that of the Apostolical Constitutions, about the same time in the third century in general; each of which recognizes March 22 as the stated date of the vernal equinox. It would be contradicted even by the celebrated equinoctial term of March 21, prescribed by the Council of Nice A. D. 325; for, if it was known or supposed to be March 21 at that time, it must have been known or supposed to have been March 22, 145 years before: i. e. A. D. 180.

But on this point we have it in our power to appeal to a very critical and remarkable proof of what we are asserting. In Tertullian's treatise, Ad Scapulam, there is an allusion to an eclipse of the sun, which had recently happened under

what he considered to be peculiar circumstances: Nam et sol in conventu Uticensi exstincto pæne lumine adeo portentum fuit ut non potuerit ex ordinario deliquio hoc pati, positus in suo hypsomate et domicilio[b]. The context[c] will shew that this eclipse must have occurred if not actually still in the reign of Caracalla, (whom Tertullian calls Antoninus,) yet soon after his death. Mention is made by Dio[d] of an eclipse the year after the death of Caracalla, A. D. 218; which appears in Pingré April 12 that year, at 5 P. M. for the meridian of Paris. *This* eclipse however, calculated afresh, would turn out to have been decidedly too late, for the meridian of Utica, to answer to the description of such a phenomenon in this instance, and as it there occurred, by Tertullian. And besides it appears to have been a very inconsiderable one in itself, and scarcely perceptible any where in Europe. But it recurred the next year, April 2 at 8 A. M. A. D. 219; and then it is found to have been altogether such as to correspond to Tertullian's description of it. We have calculated the new moon of April, A. D. 219, for the meridian of Utica, from our own Tables; and we have found as follows.

		h	m.	s.	
Mean new moon	April 2	8	15	19	mean time Greenwich.
.. ..	April 2	8	55	37	.. Utica.

		h.	m.	s.	
True new moon	April 2	7	29	37·9	mean time Greenwich.
.. ..	April 2	8	9	55·9	.. Utica.

And at the time of the true conjunction the sun appears to have been only about 4° 12′ distant from the node; so that there must have been a great eclipse on this occasion: and what from the magnitude of the eclipse itself, and what from the time of the day when it happened (the ἀγορᾶς πληθώρη of antiquity) at Utica, it may very well be supposed to have been actually that which Tertullian meant by this allusion of his to such a phenomenon.

Now he observed that this eclipse happened when the sun was in its Hypsoma. Scaliger has made a remark on this

[b] Opp. iii. 204. Cap. 3. [c] Ibid. 207. 4. [d] lxxviii. 30.

observation which implies that he thought there was some absurdity in it: Scimus quidem quæ sint hypsomata planetarum et domicilia: sed solis hypsoma impedire quominus deficiat ingenue fateor me ignorare[e]. But he has not done Tertullian justice. He did not intend, nor could he be fairly construed, to say that the sun's being in its own house and in its own Hypsoma in that house on this occasion was any hindrance to its being eclipsed; but only that its being so posited at the time of the eclipse made the eclipse so much the more remarkable. Now in the astrology of antiquity the sun's Hypsoma was dated in the 19° of the Aries or Krion of Mazzaroth[f]: reckon back therefore 18 days from April 2, as the calendar date of the 19° of the Krion of Mazzaroth, and you come to March 15th, as the calendar date of the 1° of the same. And reckon on seven days=seven degrees, in the Krion of Mazzaroth, from March 15 as the calendar date of the 1°, and you come to March 22 as the calendar date of the 8°; and therefore as the proper calendar date of the first of the cardinal points at this time, according to the received division of the sphere which dated them all *in octavis partibus.*

We have little doubt then that, among other purposes which must have been steadily kept in view in this process of the gradual reduction of the Kalends of January until they came to be attached to December 29, one was to fix and define the calendar dates of the cardinal points more in conformity to their true natural terms; in particular the two principal ones, that of the vernal equinox and that of the winter solstice. And it seems only a just and consistent inference from such proofs of the attention paid to the true relations of the natural to the civil year and *vice versa,* at subsequent points of time, that they could not have been deliberately disregarded at first; and that, if they were so accurately appreciated at those later points of time, they could not have been altogether mistaken at first.

[e] De Emendatione, Prolegomena, li.

[f] Fasti Catholici, iii. 478, note.

SECTION XXII.—*On the innovations in the Calendar made by Commodus; and on their date.*

The Kalends of January however having been thus depressed by U.C. 938, as to be actually falling at the ingress of that year on December 28 A.D. 184: we must expect to see them rising again from that time forward, and at a very rapid rate, if any such effect as the equalisation of the Roman Kalends to the Julian was to be brought about within the limited period of time which would still be left for that purpose, from U.C. 938 A.D. 184–185 to U.C. 978 A.D. 225. There is no doubt of the effect itself. We have already seen that the Kalends of January were coinciding with December 31 A.D. 218; and we have yet proof in reserve, of the most authentic kind, that such was still the case A.D. 224.

The question then can be only concerning the mode in which it must have been brought about. And in our opinion, if it was not to be done all at once, but to be the effect of something like a regular administration of the calendar, (an administration which must have gone on, subject to the law prescribed for it, a certain length of time, and an effect which must have been in the course of completion for the whole of this interval from A.D. 184 to A.D. 224,) there was but one mode of the actual administration to which it can reasonably be attributed,—that which is exemplified in our scheme of the calendar for the interval in question: viz. changing the cycle of the leap-year, and making it one of three years instead of four, for these thirty-six years in particular; i.e. from A.D. 184 to A.D. 220. The necessary effect of this new rule of administration would be that there would be 12 leap-years in these 36 years instead of 9; and therefore that three days would be introduced into the calendar at last more than would otherwise have gained admission into it: and as three days were requisite to raise the Kalends of January from December 28 to December 31, so these three days would thus be supplied.

With respect to the reasons or causes of any such change in the rule of administration and for any such interval of time as this, without resolving it at present into the Providential end and purpose which it was designed to serve, but

considering it solely as the effect of circumstances and of the ordinary motives which influence the proceedings of men; we are not in strictness bound to assign them. We are concerned only with the effect itself; and it can make no difference to a matter of fact how, or why, it came to pass: i. e. whether it can be explained or not. It happens however that the first beginning of this process, if matter of fact at all, must have fallen out in the reign of Commodus; and there was nothing so improbable in itself, so capricious, so arbitrary or so unreasonable, which would not be probable, much more possible, if referrible in its origin to Commodus—if dependent in any way on the humour, the caprice, the likings or dislikings of Commodus. And as it is certain from the contemporary accounts of history itself, that very great and arbitrary and indiscriminate changes *were* made in the calendar by him in other respects, which neither Caius, nor Nero, nor Domitian had ventured to make before him; what wonder that he should have begun his innovations with changing the cycle of the leap-year?

This change indeed, if made by Commodus, must have been begun in the 4th or 5th year of his reign, A. D. 184. The new rule of the cycle, introduced by him, must have continued in force down to the second year of Alexander Severus, A. D. 223. Yet we are told by Lampridius that one of the first things which the Roman senate did after the death of Commodus was to restore the names of the months; all of which had been changed by him. But he does not tell us that they proceeded at that time, so far as the calendar was concerned, any further in undoing the acta of Commodus; and there are good reasons why we should not be too hasty to conclude that, because they would not tolerate his names of the months even for a moment after his death, they might not be willing to retain his cycle of the leap-year.

For let us consider what the effect of this change in that cycle necessarily must have been. First of all, the Nundinal character of A. D. 184, the last year of the old cycle of leap-year, was 5: and this year by the change of the cycle becoming a common year, the character of the next year would be 8. Secondly, the Nundinal character of A. D. 185 being 8, and A. D. 185 itself being the first year of a cycle of leap-year

destined thenceforward to be one of three years, instead of four, the Nundinal characters of the three years of this cycle, beginning A. D. 185, would recur in the order of 8, 3, 6, perpetually; 8 in the first, 3 in the second, and 6 in the third: as long at least as this rule of the cycle, and from such an epoch, should continue to be observed.

Now, of all the possible modes of administering the calendar on a principle analogous to the Julian in any sense, none was so well adapted as this for guarding perpetually against such a contingency as that of the Kalends of January ever falling on the Nundinal day; and consequently, while the Romans continued to retain their old prejudice against that particular form of the Nundinal Incidence, there was none to which they were likely to be so partial. It is far from improbable therefore that though the Roman senate, as soon as they were at liberty to do so, might reject Commodus' names of the months with disdain, yet even *they* would not be unwilling to retain his cycle of the leap-year, which possessed *this* peculiar recommendation above all others. The history of the Roman senate even under the Christian emperors, so long as Rome had a senate at all, sufficiently attests the fact that the *Curia* was the stronghold of Paganism down to the last; and that the ancient prejudices and superstitions of the Romans, which Christianity had dispossessed of every other refuge, still found an asylum there. Besides, this new cycle of Commodus' was after all not his. It was an old cycle revived by him; for it could not be forgotten by *every* one at Rome, and in particular by the Pontifical College, that the very cycle which he had thus introduced was the indentical one according to which their predecessors in the college had administered the calendar almost from the first. The cycle of leap-year of Commodus therefore was very likely to survive him; though no other memento of his interference with the calendar might be permitted to do so. He had established *that* cycle by law, after *which* the Romans had no doubt hankered and longed in secret perpetually; and the senate would be the last of its own accord to call in question its right to the full and undisturbed possession of the calendar. The emperors who came next to Commodus were not likely to interfere with it on purpose. Severus

for almost the whole of his reign was too much engaged either with civil wars or with foreign expeditions to pay any attention to the calendar. Caracalla and Elagabalus from their personal character and disposition would be more inclined to approve of the follies and extravagancies of Commodus, and even to repeat them, than to correct them, and to restore the old order of things.

Be this however as it may, the effect, as we have observed, will still be the same; viz. that for 36 years, from A. D. 184 to A. D. 220, the cycle of leap-year in the actual administration of the Julian Correction at Rome was subjected to a new law: by virtue whereof the Kalends of January were raised from December 28 to December 31. And thus much being allowed to have been matter of fact, it must, on every principle, be regarded as a very extraordinary coincidence, that the same thing should have been repeated for the last 36 years of the Julian Æra, A. D. 184 to A. D. 220, which had been done in the first 36, B. C. 45 to B. C. 9; with the same effect on the calendar in each instance too: that of raising the Kalends of January three days above the epoch from which they set out; viz. from December 30 to January 2 on the former occasion, and from December 28 to December 31 on this: and that on both occasions also the effect produced, humanly speaking, should have been simply the consequence of the superstitions and prejudices of the time; and yet that on both occasions, as the event demonstrates, the superstitions and prejudices of the time should have been made subservient to the purposes of the Divine Providence. There can be no doubt that each of these irregularities in its proper order of time contributed alike to the ultimate result of all, the final and permanent equalisation of the Julian Correction at Rome to the Julian year of Chronology; the true date of which was destined to be neither earlier nor later than A. D. 224 ex Kalendis Martiis or A. D. 225 ex Kalendis Januariis. And though the direct bearing of a particular form of the administration of the calendar on an effect 269 years later than itself is not all at once perceptible, it is nevertheless, in this instance, as real as if it had immediately preceded; while as to the repetition of the same extraordinary economy for these last 36 years, and in connection with the common result of

both, it is too plain and palpable to be mistaken by any except those who cannot or will not recognize the finger of the Divine Providence even in such coincidences as these. It is certain that, without this irregular administration of the cycle of leap-year for 36 years from A. D. 184 to A. D. 220, no such coincidence could have held good as that of the Kalends of January U. C. 977 falling on December 31 A. D. 223; and it is equally certain that, if that had not been the case just at the egress of our xxxivth Julian Type, and the ingress of our xxxvth, the actual Julian Correction at Rome never could have stepped at that moment into the place of this xxxvth Type in our Tables, and in the same state of relation to the natural year as any of those which had preceded it, from B. C. 4004 downwards. It is certain however that it did succeed to the place of that Type and at that time; and that, having taken possession of our Tables at that time, it has continued in possession of them ever since, as the proper Julian Type of the noctidiurnal in conjunction with the natural annual cycle[f]. We resolve this final coincidence into the Providence of God; that Providence which has presided over and controlled every thing, both in the moral and in the physical world, perpetually: and nothing more clearly, more intelligibly, more indisputably than the entire course and succession of time. We shall therefore take our leave of this subject for the present; hoping to resume it in the next Dissertation. But we must say something, before we conclude, more particularly than has yet been done, of the nature and the date of those changes in the calendar which were made by Commodus.

That an indiscriminate alteration of the nomenclature of the Julian Calendar was sometime made by Commodus is a well attested fact; but whether it was made all at once is a doubtful point. We have seen reason to conclude that having been born himself in the month of August he began with changing the name of that month from Augustus to Commodus; and that this change was made in the first year of his new cycle of leap-year, A. D. 185: but that the names of the rest of the months were not altered by him until a later period of his reign.

[f] Cf. our Fasti Catholici, i. 493: 525. Introduction, 154—163.

That Commodus was born in the month of August (Pridie Kalendas Septembres, August 31 Roman, U. C. 914 A. D. 161) appears from Lampridius[g]; and that would be reason sufficient why he should have chosen to give his own name to that month rather than to any other. It is accordingly plainly to be inferred from Dio Cassius and Lampridius[h] that Commodus in his calendar must have been the name of August; though the later historians and chroniclers[i] speak as if that name was given by him to the Julian month of September, or, according to the Greek version of Eutropius in particular, to that of November.

The date of this change however is the most important part of the question; and that seems to have been rightly assigned by Jerome to the 5th of Commodus, A. D. 185[k]: Commodus Septembrem mensem nomine suo appellavit. No doubt too a similar statement occurred in Eusebius' Greek Chronicon under the same year; though it does not appear in the Armenian version of it at present. A marble is extant[l] with the inscription of

Idus . Commodas
Eliano . Cos.

i. e. U. C. 940 A. D. 187: which proves that the month so called had already received its name before the Ides of August U. C. 940 A. D. 187.

With regard to the rest of the names in his calendar, nothing is extant, no marble, no coin, nor contemporary testimony, which connects any one of them with a particular date; or in fact recognizes them at all except collectively. They were however so related to each other, and to Commodus himself, and so connected, that they must have been imposed on the calendar simultaneously; and it may be inferred from Dio[m] that this was most probably done at the same time and on the same occasion, (in the same year at least,) when Commodus changed the name of Rome itself to that of Colonia Commodiana: Τὴν δὲ Ῥώμην ἀθάνατον εὐτυχῇ Κολωνίαν οἰκουμένην τῆς γῆς (καὶ γὰρ ἄποικον αὐτὴν ἑαυτοῦ δοκεῖν ἐβούλετο) ἐπωνό-

[g] Vita, i. 10. Suetonius, Caius, viii.
[h] Dio, lxxii. 15. Lampridius, Vita, 11.
[i] Cf. Eutropius, viii. 7. Aurelius Victor, Commodus. Jerome, Chron. Ad Ann. 2200. Prosper, Chron. 715 a.
[k] Thes. Tempor. Ad Ann. 2200: Ol. 240. 4.
[l] Gruter, cccxxx. 3.
[m] lxxii. 15.

μασε[m]. καὶ τέλος καὶ οἱ μῆνες ἀπ' αὐτοῦ πάντες ἐπεκλήθησαν, ὥστε καταριθμεῖσθαι αὐτοὺς κ', τ. λ. The date of this change of the name of Rome seems to be fixed by one of his coins[n] to U. C. 943 A. D. 190, Trib. Pot. xv. Consul vi; and it may be collected from Dio[o] that Rome was already known and recognized by its new name when he was Consul vii, U. C. 945 A. D. 192, in the last year of his reign. It is most probable therefore that the actual date of this indiscriminate alteration in the names of the months was A. D. 190; and not later than April 21 that year, the Urbis Natalis and the old date of the Palilia: for among his other extravagances he seems to have substituted a new day, called Commodia also after himself, for the old one of the Palilia; and in commemoration of the change of the name of Rome: Κομμοδιανὴν γοῦν τήν τε Ῥώμην αὐτὴν, καὶ τὰ στρατόπεδα Κομμοδιανὰ, τήν τε ἡμέραν ἐν ᾗ ταῦτα ἐψηφίζετο Κομμοδίαν, καλεῖσθαι προσέταξεν[o].

No account of these times and of their events can be considered *a priori* more authentic and trustworthy than that of Dio Cassius, who was living all through the reign of Commodus; and wrote the history both of his reign and of the reigns which followed upon it down to A. D. 228, in that of Alexander Severus, from his own observation and his own knowledge*. And if the abridgment of this part of his his-

* From Photius' account of Dio Cassius[1] it appears that his history consisted of 80 books. His style, according to Photius, was Cassianus Coccianus (or Coccius) Dio. He mentions[2] that he was appointed by Macrinus governor of Pergamus and Smyrna; and that, it would appear from Dio himself[3], must have been in the course of A. D. 217 or in the spring of A. D. 218. Ἔπειτα, says Photius[2], τῆς Ἀφρίκης ἡγεμόνευσεν, εἶτα Παννονίας ἦρξε, καὶ ὑπατεύσας τὸ δεύτερον (A. D. 229) οἴκαδε ἀπῆρεν. Of these facts in his history see himself[4].

He was a native of Bithynia[5]; and of the city Nicæa there[6]. Priscus, architect of the defences of Byzantium (A. D. 193—195,) was his fellow-townsman[7]. His father's name was Apronianus[8]; and he was governor of Cilicia at the time when Trajan died at Selinus in that province[9], A. D.

1 Cod. 71. p. 35. 2 P. 35. l. 14. 3 lxxviii. 8: lxxix. 7, 8. 4 xlix. 36: lxxx. 1. 4. 5 lxix. 14. 6 lxxv. 15. 7 lxxiv. 11. 8 lxix. 1. 9 lxxii. 7.

m Cf. Athenæus, i. 36.

n Eckhel, Doctrina Numm. Vett. vii. 121, 122. Cf. Clinton, in anno.

o lxxii. 15.

tory by Xiphilinus, (which is all that remains of it at present,) may be depended on; the names and order of the months in Commodus' calendar, compared with the proper Roman and Julian one, stood as follows [p].

	Calendar of Commodus.		*Roman or Julian Calendar.*	
i	Ἀμαζόνιος	Amazonius	i	Januarius
ii	Ἀνίκητος	Invictus	ii	Februarius
iii	Εὐτυχής	Felix	iii	Martius
iv	Εὐσεβής	Pius	iv	Aprilis
v	Λούκιος	Lucius	v	Maius
vi	Αἴλιος	Ælius	vi	Junius
vii	Αὐρήλιος	Aurelius	vii	Julius
viii	Κόμμοδος	Commodus	viii	Augustus
ix	Αὐγοῦστος	Augustus	ix	September
x	Ἡράκλειος	Herculeus	x	October
xi	Ῥωμαῖος	Romanus	xi	November
xii	Ὑπεραίρων	Exsuperatorius	xii	December

117: and he seems to have been governor of the same province, even in the reign of Commodus [8]; 63 years at least later: though that is scarcely credible. He was sometime too governor of Dalmatia [9].

Dio speaks of Pompeianus, Marcus Aurelius' Præfectus Prætorii, as his own contemporary [10]. He was himself at Rome A. D. 180—181 [11], and A. D. 193 [12]; and sometime before A. D. 203 in Italy, at Capua, living there, and writing there [13]. He was at Rome also A. D. 194, at the Saturnalia [14]: yet at Byzantium sometime after its capture and the demolition of its walls, A. D. 195—196 [15]. He was at Nicomedia in Bithynia, at the Saturnalia, A. D. 216 [16]; at Pergamus in the winter of A. D. 218, and the spring of A. D. 219 [17]: and still in Asia when Alexander Severus was declared Cæsar at Rome [18]. See more of his personal history, xlix. 36: li. 17: liii. 14. 16.

He was twice consul; once before he wrote lx. 2. of the reign of Claudius, a second time, A. D. 229, under Alexander Severus [19]: and he made that consulship the term of his history. He began his history after the accession of Severus, A. D. 193 [20]. He was employed ten years in the collection of his materials down to the death of Severus, and twelve in putting them together.

8 lxxii. 7. 9 xlix. 36: lxxx. 1. 4.
10 lxxiii. 3.
11 lxix. 1. Cf. lxxii. 4. 16. 18. 21.
12 xlvi. 46: cf. xliii. 46: xlviii. 35.
13 lxxvi. 2. 1. 14 lxxv. 4.
15 lxxiv. 14. 16 lxxviii. 8.
17 lxxix. 7, 8. 18 Ibid. 18.
19 lxxx. 2: cf. 4, 5.
20 lxxii. 23: cf. lxxviii. 10: lxxx. 5.

53.

[p] lxxii. 15.

These appellations were all taken from personal titles of Commodus, previously given to him or assumed by him; of which Dio exhibits a long list in the same chapter[p], under the hand and seal of Commodus himself. Herodian too[q] alludes to these changes, and to the new nomenclature or style of the calendar, under names derived from such personal titles, most of them expressive, or intended to be so, of some attribute of Hercules; whom, of all the heroes of mythology, Commodus most affected to rival. Suidas repeats the same names[r]; but in such an order that while Ἀμαζόνιος is the first, Κόμμοδος is the second, and Αὐρήλιος is the last. This enumeration of them however and in such an order is not there proposed as historical; but merely as an account of such months and such names as actually and in any order entered this calendar.

Lampridius in his Life of Commodus speaks of these changes as follows[s]: Menses quoque in honorem ejus pro Augusto Commodum, pro Septembri Herculeum, pro Octobri Invictum, pro Novembri Exsuperatorium, pro Decembri Amazonium (ex signo ipsius[s],) adulatores vocabant: and this differs materially from Dio's. Yet that his account is more or less in error, and that Dio's where it differs from his is the true one, may be proved from Lampridius himself.

He tells us, for instance[t], that Commodus was declared emperor on the v Kalendas Decembres; and here[s] he tells us he was so on the v Kalendas Exsuperatorias; (Pollione iterum et Apro Coss. U. C. 929 A. D. 176). If so December and Exsuperatorius were the same month; as Dio makes them to be.

Again, he tells us here[s] that Commodus triumphed on the x Kalendas Amazonias iisdem Coss.; i. e. those of U. C. 929 A. D. 176: and, as this was after he had been declared Imperator on the v Kalendas Decembres or Exsuperatorias, he must have triumphed in the last month of this consular year; and therefore the x Kalendas Amazonias in this instance could mean nothing but the x Kalendas Januarias: and Amazonius and Januarius must have been the same month.

The order of Dio is confirmed by the fact that in his list the name of Commodus represents that of August, the

[p] lxxii. 15. [q] i. 46. [r] Κόμοδος. [s] Cap. 11. [t] Ibid. 2.

month in which Commodus himself was born. Augustus indeed appears next to it on his list also as the representative of September; but clearly only as the first of the official titles of Commodus, distinct from his proper names: both which together make up the nomenclature of his calendar throughout.

It is confirmed also by the fact that Romanus in his list represents November; and Lampridius himself has produced an extract from the Acta Publica [u], in which the name of this month occurs: Datus in perpetuum ab exercitu et senatu in domo Palatina Commodiana conservandus, xi Kalendas Romanas, Præsente iterum consule: i. e. U.C. 933 A.D. 180. If so, in the first year of his reign; after the 17th of March Roman at least, on which Marcus Aurelius died. Now it appears from Herodian [w] that he did not return to Rome until some months after the death of Marcus. He must therefore have returned in the summer or in the autumn of A. D. 180; and therefore Romanus, and Herculeus the month before it, must have been two of the autumnal months in his calendar, as October and November were in the Julian.

It is strongly confirmed too by the fact that if you begin with the month called Lucius, which in Dio's list represents the Julian May, and read the names of the months all through according to his order, you read the titles and the styles of Commodus himself; both his personal and his official ones, which had either been given him before this time, or which he had assumed on purpose: Lucius Ælius Aurelius Commodus, Augustus, Herculeus, Romanus, Exsuperatorius, Amazonius, Invictus, Felix, Pius [x]. It is far from improbable that in his own calendar, and under these names, Lucius was the first month. Dio's list certainly begins with Amazonius; but that might be simply because it corresponded to January.

If the earliest date of these indiscriminate changes was A. D. 190; they could not have lasted more than two or three years. One of the first acts of the senate after the death of Commodus was to abolish these new names and to restore the old. Lampridius has recorded from Marius Maximus both the name of the mover of this motion, Cingius

u Vita, 11. w i. 10–19. x lxxii. 15.

Severus, and the terms in which it was made[y]: Quoniam læta percensui, nunc convertar ad necessaria: censeoque..... abolendas statuas quæ undique sunt abolendæ; nomenque ex omnibus privatis publicisque monumentis eradendum: mensesque his nominibus nuncupandos quibus nuncupabantur quum primum illud malum in rempublicam incubuit. Yet he has himself recorded from the Acta Publica the dates of several facts in the life of Commodus; all of them older than A. D. 190, yet given in the style of his calendar. It does not follow that he found them so recorded in the Public Journals. On the contrary, from what he observes upon the first, it may be inferred that he reduced them to the new style from the old style himself. They are however the following[z].

Nominatus inter Cæsares quarto Iduum Octobrium, quas Herculeas postea nominavit, Pudente et Pollione Coss. (U. C. 919 A. D. 166).

Appellatus Germanicus Idibus Herculeis, Maximo et Orfito Coss. (U. C. 925 A. D. 172).

Assumptus est in omnia collegia sacerdotalia sacerdos xiii Kal. Invictas, Pisone et Juliano Coss. (U.C. 928 A.D. 175[a]).

Profectus in Germaniam xiv Kal. Ælias, ut postea nominavit, iisdem consulibus (U. C. 928 A. D. 175.)

Cum Patre appellatus Imperator v Kal. Exsuperatorias, Pollione iterum et Apro Coss. (U. C. 929 A. D. 176).

Triumphavit x Kal. Amazonias, iisdem Coss. (U. C. 929 A. D. 176).

Iterum profectus iii Nonas Commodias, Orfito et Rufo Coss. (U. C. 931 A. D. 178).

Datus in perpetuum.....conservandus xi Kal. Romanas, Præsente iterum Cos. (U. C. 933 A. D. 180).

Vota pro eo facta sunt Nonis Piis, Fusciano iterum Cos. (U. C. 941 A. D. 188).

[y] Cap. 20. [z] Cap. 11. [a] Cf. 1 and 10.

DISSERTATION XXI.

On the decursus of the Hebdomadal Cycle, and on that of the Nundinal Cycle, in the Julian Correction.

CHAPTER I.

On the Hebdomadal Cycle of the Julian Correction, from B. C. 45 *to* A. D. 225.

SECTION I.—*Preliminary observations; and proposed method of proceeding in treating of this question.*

THE prejudices, which this present work is liable to encounter from the preconceived opinions of learned men and chronologers, are many and various; but none in all probability is likely to be more general, nor at first sight to appear to be better founded, than that which is due to the opposition in which the Hebdomadal cycle of the Fasti Catholici is placed to the common solar cycle of chronologers, as well before the epoch of the Julian Correction as after it, down to a certain time at least. It has always been taken for granted that the solar cycle of chronology could be applied either forwards or backwards to any extent; and might be just as much depended on in the one case as in the other: and in particular that, from the date of the Julian Correction B. C. 45 downwards, it must have been applicable perpetually. Yet from B. C. 45 to A. D. 224 or A. D. 225 the same opposition between the Hebdomadal cycle of these Fasti and the solar cycle of chronologers continues to prevail as before. For the whole of this interval of time *our* Hebdomadal cycle is still one thing, and that of

chronologers in general is another. They begin to agree first only in A. D. 225, or at the earliest in A. D. 224.

It is a very important question which of the two all this time is the true standard of reference, the true measure of the course and succession of the Noctidiurnal cycle in periods of sevens perpetually; and not only from this time forwards but also for all the preceding time down to this. We do not however propose to open this question afresh, and at the present stage of our inquiries. Enough was said in reference to it in the preceding part of this work[b]; and we are quite content that for the three Periods of our Fasti Catholici, the xxxiind, the xxxiiird, and the xxxivth, which comprehend among them the interval from B. C. 45 to A. D. 224 or 225, both the theory and the praxis of our Hebdomadal cycle should rest on the same foundation as ever before until then: and that the whole of our system of time in this respect should stand or fall together.

It is proper however to remind the reader that this question of the actual course and succession of the Hebdomadal cycle from B. C. 45 to A. D. 225 is after all simply one of *fact;* and like all others of the same kind it is to be determined by *testimony.* The first consideration with a view to the decision of such a question is or should be, What is to be inferred concerning it from testimony, and in particular from contemporary testimony? What facts are on record, from which a judgment may be formed about it? What is discoverable in any of the contemporary sources of information, which have come down to posterity; or in those which though not contemporary relate to the same times and the same occasions or occurrences? What is to be found in Roman history, in the Christian Scriptures, in Josephus, in the Paschal cycles of Ecclesiastical antiquity, in the acta of martyrs, in the proceedings of councils, in Ecclesiastical writers, on marbles and in inscriptions—calculated to throw any light upon it? This is, in our opinion, the only right method of proceeding, with regard to the solution of such a question as this; and not any of those shorter and more compendious modes of deciding it which have nothing to recommend them but their

[b] Fasti Catholici, Diss. vi. ch. iii. Vol. i. 439–500: Vol. iv. App. ch. ii. 534–553. Introduction, Part ii. ch. iii. iv. 120–170.

facility and their obviousness; and on that account are the first to suggest themselves to our indolence, instead of that long and laborious, that tedious and complicated, process of arriving at the truth which has just been pointed out.

For the sake therefore of this question, and in order to illustrate this course of proceeding in treating of it, we propose to take a review of the course and succession first of the Hebdomadal cycle, and secondly of the Nundinal, (which was never any thing but the Hebdomadal under a different name and in another form,) in the Julian Correction properly so called; that is, from B. C. 45 downwards, as low as it may be necessary in each instance to continue it: and of that of each strictly as a question of fact, which must be determined by testimony. In each of the Periods of our Fasti which come between B. C. 45 and A. D. 225, some facts are on record, whereby the correctness of the Hebdomadal cycle of the Period at such and such points of time may be put to the test; and its truth at a given point of time in any one Period being established, it is ascertained and authenticated for the whole of the Period. No one requires to be told that in one and the same Julian Period of our Fasti the Hebdomadal character of any subsequent year is determined by that of the very first year of the Period itself; and that, if any one year, and at any point in the decursus of the Period, can be shewn to be rightly characterized in that respect, every other must be so too from the beginning to the end of the Period. What we shall do therefore at present will be to inquire into the characters of particular years, one or more in each of the Periods in question; and whether they can be either certainly or probably collected in this manner from testimony of any kind *ab extra*. It will answer our purpose, if only one year in each can be established by these means; for even one year, rightly and certainly ascertained, will be competent to vouch for the rest. We do not however despair of being able to establish more than one, in the last two of these Periods at least, if not in the first.

SECTION II.—*Fasti Catholici, Period* xxxii. B. C. 140—B. C. 29. *Hebdomadal character of* B. C. 44. *On the historical circumstances of the funeral solemnities of Julius Cæsar.*

The first year of the Julian Æra B. C. 45 was the 96th year of the xxxiind of our Julian Types; and by the proper Hebdomadal cycle of the Type the character of the year was G F, by the common solar cycle it was C B. The next year, B. C. 44, the second of the Julian Æra, the Hebdomadal character according to the cycle of the Type was E, according to the solar cycle it was A. This was the year of the death of the dictator Cæsar; and, as far as the truth of each of these two cycles respectively for this particular year is concerned, it may be put to the test by means of the circumstances which have been left on record of the death and burial of Cæsar.

The body of Cæsar was burnt by the people of Rome in the forum; and among the other marks of grief or sympathy, displayed at the time, Suetonius mentions the following[c]: In summo publico luctu exterarum gentium multitudo circulatim suo quæque more lamentata est; præcipueque *Judæi,* qui etiam noctibus continuis bustum frequentaverunt.

This allusion to the Jews in particular, and this express mention of their attendance about the funeral pile of Cæsar *Noctibus continuis,* not *Diebus continuis,* imply that they began this attendance first in the evening or night-time as such. Yet it is certain that Cæsar's funeral took place in the day-time. Laying these facts together, *we* draw from them both the inference that the actual day of his funeral was the Jewish Sabbath, and the actual date of the commencement of the proceedings connected with his funeral was the morning of the Sabbath; at which time the scruples of the Jews would not allow them to take any part in them: but that as soon as their Sabbath expired, in the evening consequently of the same day, on the Feria prima of the week reckoned from sunset, they shewed their own sympathy with the common grief for the loss of Cæsar by beginning their attendance in person on his burning remains, or on the spot where his funeral pile had been erected, (which is the proper

[c] Vita, lxxxiv. 8.

sense of bustum in the above passage of Suetonius); and persisted in so doing for a number of days, so reckoned from the night, in succession, probably six or seven at least: the usual period of the mourning at funerals among them.

Now the date of the death of Cæsar being the Ides of March, March 15 Roman, March 13 Julian, B. C. 44, that of his funeral solemnities was the *third* day after*, March 17

* The exact interval of time from the date of the death of Cæsar to that of his funeral solemnities may be collected from Suetonius; who mentions the attack made by the people on the houses of Brutus and Cassius, Statim a funere[1], and their putting to death Helvius Cinna (who accidentally came in their way) in mistake for Cornelius Cinna, one of the conspirators: Quem graviter *pridie* concionatum de Cæsare requirebant. Valerius Maximus[2] tells us that Helvius fell in with the infuriated populace as he too was returning *a funere*. Consequently the same day. The speech of Cinna, which made his name so obnoxious, was delivered the day after the death of Cæsar. So that the *Pridie*, in reference to that, must have been intended by Suetonius of the day after the Ides, March 16 Roman; and therefore the day of the funeral of March 17 Roman.

None however of the historians of these events has specified the intervals in question more distinctly than Appian. He has the day of the death of Cæsar[3] (the Ides, March 15) down to the night; and the day after it[4], the day of the first meeting of the senate in Ædе Telluris (March 16); and the day after that (March 17), the third from the death, beginning Ἅμα δὲ ἡμέρᾳ[5]; on which day the sons of Antony and Lepidus were sent to the conspirators in the Capitol, as hostages: and so on down to the fourth day[6] (March 18). Now the funeral of Cæsar was part of the events of the third day; as also the tumultuous proceedings which arose out of it[7]. The night of the day of the funeral is specified[8]; and the people it is said Τὴν νύκτα πανδημεὶ τῇ πυρᾷ παρέμενον: which throws further light on Suetonius' statement respecting the Jews in particular, and the beginning of their attendance about the funeral pile at night. It may be observed too that according to Plutarch[9] a comet appeared first at the funeral of Cæsar; and for seven days afterwards. And this too would imply that the funeral solemnities on the first day were continuing in the evening, and for seven days after; so that Suetonius' observation of the attendance of the Jews upon them for many nights in succession, Noctibus continuis, would be literally true.

1 Julius Cæsar, lxxxv. 1.
2 ix. ix. 1 De Errore. Cf. Plutarch, Brutus, xiv: xviii: xix: xx.
3 Bell. Civ. ii. 118–125.
4 Ibid. 126–142. Cf. particularly, 129. (122.) 131. (115.) 133. 137.
5 ii. 142. Cf. iii. 15: iv. 57.
6 ii. 147.
7 ii. 143–147: i. 4: iii. 15. Cf. Livy, cxvi.
8 ii. 147, 148.
9 Cæsar, lxix. Cf. Vol. ii. 626: iii. 479.

Roman March 15 Julian; and the Dominical letter of the year being E, March 15 Julian was *Saturday*. Had the Do-

In Dio we have the Ides of March[10], and the next day[11]; and after that the burial and the proceedings connected with it[12]: which are thus virtually if not actually dated on the second day after the Ides, March 17.

Plutarch in his life of Cæsar[13] notices apparently only two days between the death and the funeral: and on the second of these he dates the recitation of the will of Cæsar and the death of Cinna[14]. Consequently by the second he meant March 17. From the Brutus we collect both the Ides[15], and the day after[16], and the next day[17]; and the same day still to all appearance (consequently March 17) he has the funeral[17].

From Cicero also we may collect that the day of the burial solemnities of Cæsar must have been March 17; or, as he terms it in his Epistles to Atticus[18], the Liberalia. i. Ex eo die quo in Ædem Telluris convocati sumus[19] (March 16 according to Appian)—Tu autem M. Antoni (absentem appello) unum illum diem quo in Æde Telluris senatus fuit non omnibus iis mensibus quibus te quidam .... beatum putant anteponis? .. illo primum die ... tuus parvulus filius in Capitolium[20] a te missus — Proximo, altero, tertio, reliquis consecutis diebus, non intermittebas quasi donum aliquod quotidie afferre reipublicæ[21]: March 17, 18, 19 Roman. Here indeed there is no allusion to the funeral. Only the meeting in Æde Telluris and the mission of the hostages to Brutus and Cassius[22] are dated on the same day, March 16; though Appian dates the latter on March 17. But Dio[22] agrees in this respect with Cicero; and he mentions besides Brutus' supping the same evening with Lepidus, and Cassius' with Antony.

ii. Post diem tertium veni in Ædem Telluris, et quidem invitus, cum omnes aditus armati obsiderent[23]. The mission of Antony's son as an obses is mentioned here too[24]: but this must have been a second meeting in Æde Telluris, though the first which might have been attended by Cicero in person. And it is clearly dated by him on March 17. He continues: Etsi tum cum optimum te putabant ... funeri tyranni si funus illud fuit sceleratissime præfuisti: tua illa pulchra laudatio, tua miseratio, tua cohortatio. tu tu illas faces incendisti. And this on the same day

10 xliv. 18, 19-21. (cf. 22-34.) 52: xlvii. 19.

11 xliv. 22-34: xlvi. 28.

12 xliv. 35-51. Cf. Zonaras, x. 12. 492 C—493 B.

13 lxvii. lxviii.

14 Cf. Cicero, xlii: Antonius, xiii. xiv.

15 xiv-xviii. 16 xix.

17 xx. 18 xiv. 10-14.

19 Oratio xliii. Philippica, i. 1, 1.

20 The conspirators took refuge in the Capitol on the Ides of March, after the death of Cæsar. Cf. Florus, iv. 7, 2.

21 Philippica, i. 13, 31, 32: cf. ii. 36, 91.

22 Cf. Vell. Pat. ii. 58: Dio, xliv. 22-34.

23 Philippica, ii. 35, 89.

24 Ibid. 36, 90. The site of the Ædes Telluris, so often alluded to in these accounts, according to Dionysius, viii. 79, was Κατὰ τὴν ἐπὶ Καρίνας φέρουσαν ὁδόν. Cf. Val. Max. vi. iii. 1 De Severitate.

minical letter been A March 15 must have been a Wednesday. The former explains at once why the attendance of the Jews on these solemnities bore date from evening, and evening only; the latter is not consistent with that fact. If then the inference from this coincidence, viz. that March 17 Roman the day of the burial of the dictator Cæsar was the Jewish Sabbath, is not absolutely certain, it must be admitted to be highly probable; and in proportion to the certainty or the probability of that conclusion is that of the consequence necessarily included in it: viz. that the Hebdomadal character of B.C. 44, the second year of the Julian Æra, must have been E, as it is shewn by our Fasti to have been; and not A, as it must have been according to the common solar cycle*.

SECTION III.—*Fasti Catholici, Period* XXXIII. B. C. 28 *to* A. D. 112.

This Period of our Fasti is undoubtedly the most important of all on the present question at least. The Chronology of the Gospel History, including the date of the Nativity, the date of the Passion, the various steps in the propagation of

too, March 17. The day of the burial is thus clearly determined to March 17.

It may be further observed, in reference to this subject, that two edicts are on record in Josephus[25], both issued B.C. 44; one in the lifetime of Cæsar, on the v Idus Februarias, the other after his death, on the iii Idus Apriles: the former Feb. 9 Roman Feb. 7 Julian, the latter April 11 Roman April 9 Julian. Both were in favour of the Jews; and neither of them we may suppose would be issued on the Sabbath. Accordingly February 7 B. C. 44 was a Friday, April 9 was a Wednesday. This latter indeed might have been passed in the lifetime of Cæsar himself, but on April 11 Roman, April 9 Julian, B. C. 45. And that year too April 9 was a Tuesday.

* We are confining ourselves at present to such proofs of the position for which we are contending as have not yet been produced. We do not therefore insist afresh here on what has been already shewn supra, on grounds of great probability, of the Hebdomadal character of B. C. 35, Vol. ii. 536. For the same reason neither shall we again insist on what has been shewn, from the testimony of the calendar of Claudius Thuscus, of that of A. D. 51–52. See Vol. ii. 490: 530.

[25] Ant. Jud. xiv. x. 10: cf. xii. 3.

Christianity and their respective dates, the Acts of the Apostles, and every thing of that kind, is comprehended in it. No where in the history of time is the true course of the Hebdomadal cycle of more consequence than here. The entire superstructure of the Gospel Chronology may be said to rest upon it. It is a providential circumstance that, for the whole of this most important and most interesting Period, one and the same Julian Type B.C. 28 to A.D. 112 still retains possession of our Tables; and therefore the Hebdomadal character of *any one year* in the course of this interval having been determined that of every year, as far back as B.C. 28 and as far down as A.D. 112, is determined also. The first which we shall consider between these extremes is A.D. 43 the 71st year of the Type; the character of which according to the cycle of the Period was D, according to the common solar cycle was F.

i. *Circumstances of the death of Herod Agrippa*, A.D. 43.

This was the year of the death of Herod Agrippa[d]; related in the Acts of the Apostles[e], and also by Josephus[f]. It appears from both that he was struck with his fatal sickness on some public occasion at Cæsarea; and, from Josephus in particular, that he was so when engaged in the celebration of a spectacle; Θεωρίας, εἰς τὴν Καίσαρος τιμὴν ὑπὲρ τῆς ἐκείνου σωτηρίας. He gives us further to understand that this occasion was something which Herod, for that reason, had been in the habit of keeping as a feast: Ἑορτήν τινα ταύτην ἐπιστάμενος. We may collect from this language that it was of annual occurrence, like one of the regular feasts; and that Herod had been accustomed to celebrate it every year: but that it had a special and exclusive reference to his friend and patron the Roman emperor Claudius, to whom he was indebted not only for the confirmation of the Tetrarchy given him by Caius or Caligula, but for the enlargement of his dominions, and for the title of king[d], which he did not before possess. No conjecture then can be more probable than that this stated occasion, which he was in the

[d] Dissertations on the Principles &c. ii. 48: i. 284–302.

[e] xii. 19–23.

[f] Ant. Jud. xix. viii. 2. Cf. Zonaras, vi. 11. 280 D–281 B.

habit of celebrating every year in honour of Claudius, was that emperor's birthday.

The birthday of Claudius, as we have seen[g], was the Kalends of August, August 1 Roman: and, if this occasion A. D. 43 was really that of Claudius' birthday, it would be going on about August 1 Roman that year. We had to consider this year supra[g]; and we saw that, though it was made a leap-year at Rome *extrâ ordinem*, the intercalary day was inserted at the end of the year: and that consequently the relation of the Roman to the Julian Kalends all through A.D. 43 was not affected by it. Now that relation was one of equality. January 1 Roman was then coinciding with January 1 Julian; and therefore August 1 Roman with August 1 Julian. This stated occasion then, which Herod was celebrating at Cæsarea, if going on about August 1 Roman in this year was going on about August 1 Julian also.

It is observable that the day, on which Herod was making the address to the people, in the midst of which he was smitten, is called in the Acts of the Apostles a Τακτὴ ἡμέρα, a set or appointed day; and this mode of designating it seems to imply that it was the principal day of the celebrity. And indeed what other would Herod select, and therefore appoint, for an extraordinary address to the people and to the deputation from Tyre, but that? It is observable on the other hand that Josephus calls it the Δευτέρα τῶν θεωριῶν ἡμέρα. If so, we draw from both these representations together the inference that on *this* occasion (an occasion in honour of the birthday of the emperor Claudius) for some reason or other the *second* day was the principal day of the celebrity.

Now let us suppose that the emperor's birth-day fell this year on the Sabbath; and that these were θεωρίαι, spectacles, shows, which Herod had been accustomed to exhibit on the emperor's birth-day. It is certain that, though at any other time that might have been done on the emperor's birth-day, it could not be done upon it at this time, if the birth-day fell on the Sabbath, without a breach of the Sabbath. Now Herod Agrippa himself according to Josephus[h] was as scru-

[g] Page 129 supra.

[h] Ant. Jud xix. vi. 1.

pulous an observer of the ceremonial law as any of the Jews. He would have been careful at least not to offend the religious prejudices of his subjects by any violation of the Sabbath. The Acts of the Apostles testify that it was out of deference to their prejudices that he stretched out his hands to vex certain of the Church; that he killed James the brother of John with the sword: and because he saw it pleased the Jews proceeded to lay hold on Peter also. If then the birth-day of Claudius this year fell on the Jewish Sabbath; he could have no alternative but to defer its celebration until the next day. And thus we should explain why the *second* day of the occasion and not the *first* should have been the principal day; and why Herod should have chosen to give an audience to the ambassadors from Tyre and to harangue the people on that day. He might nominally have begun to keep the birth-day on the Sabbath; but its real celebration must have been reserved for the first day of the week.

Now if the hebdomadal character of the year was D, August 1 must have been Saturday, and August 2 Sunday. The birth-day of Claudius then this year must have fallen on the Sabbath; and therefore could be kept, with shows and diversions at least, at the earliest only on the next day. But if the hebdomadal character had been F, August 1 must have fallen on the Feria quinta, or Thursday: and the first day of the occasion both might have been and must have been the great day.

Josephus defines the commencement of these shows of the second day as Ἀρχομένης ἡμέρας: i. e. the earliest point of the day in the morning; and though that would be only agreeable both to the Roman rule in the celebration of such solemnities, and to the domestic and public habits of the East; yet it would be consistent also with such a season of the year, for the climate of Judæa, as the beginning of August. He tells us also that, after he was struck on this occasion in the midst of his address to the people, his illness lasted five days. Consequently from Sunday August 2 to Friday August 7: and that too would be a very observable coincidence. The Jewish dates of these events are of no importance to the present question. Yet by the sacred Calendar, Period vi.

Cycle iii. 15, August 2 A. D. 43 corresponded to Ab 8 and August 7 to Ab 13*.

ii. *Hebdomadal character of* A. D. 70. *Date of the Capture of the Temple.*

A. D. 70 was the 98th year of this Period. The character of the year, according to the cycle of the Period, was E; according to the common solar cycle it was G. It was the year of the destruction of the second temple. With respect to the circumstances of that event, Jewish tradition has perpetuated two facts; *one* that it happened in this instance on the same day of the month on which the destruction of the first temple had happened on the former occasion: the other that it happened when the first of the Courses was just come into office; and therefore on the Sabbath.

With respect to the former coincidence, we assume that the true day of the event on the former occasion was the *seventh* of the *fifth* month[1]. If so, the date of the event on the second occasion, A. D. 70, was the seventh of the fifth month likewise. With respect to the latter, the tradition of the Jews indeed deposes simply to the fact that on the day of the destruction of the second temple a cycle of Courses had just been completed, the last Course had just gone out of office and the first had just come in; and that at the actual time of the destruction the ministering Course *de facto* was the first, or Joarib. Now the Courses relieved each other on

* There is a rescript or decree of Claudius, relating to the custody of the sacerdotal vestures, which was issued, according to Josephus, (Ant. Jud. xx. i. 2.) at the instance of Agrippa the younger, son of Herod Agrippa.

At the beginning, it is dated Δημαρχικῆς ἐξουσίας τὸ πέμπτον: i. e. some time after January 24 Roman A. D. 45. Also Ὕπατος ἀποδεδειγμένος τὸ τέταρτον: which would seem to imply A.D. 46; as Claudius was consul iv *de facto* only in A. D. 47. But a subscription appears at the end, Ἐγράφη πρὸ τεσσάρων Καλανδῶν Ἰουλίων ἐπὶ ὑπάτων Ῥούφου καὶ Πομπηίου Σιλουανοῦ. And these were consuls Ex Kal. Juliis A. D. 45 U. C. 798: so that the date of this rescript must have been iv Kal. Julias, June 28 Roman, and June 28 Julian also, A. D. 45.

A. D. 45 Dom. Let. A June 28 was a *Wednesday*.

[1] 2 Kings xxv. 8, 9.

the Sabbath; i. e. went in and went out in turn at *noon* on the Sabbath. If so, the day of the destruction of the second temple must have been the Sabbath; and therefore, if it was the 7th of the 5th month A. D. 70, the 7th of the 5th month A. D. 70 must have been the Sabbath. Tradition among the Jews too has handed down a coincidence altogether similar to this, in the circumstances of the destruction of the first temple; that on the day of that event too, in its proper order of time, a cycle of Courses had just been completed, and the last Course had just gone out of office and the first had just come in. From which coincidence it must follow that the destruction of the first temple too happened on the Sabbath; and therefore, if the day of that first destruction was the 7th of the 5th month in its proper year, the 7th of the 5th month in that year was a Sabbath, as much as the 7th of the 5th month A. D. 70*.

Now the fifth month in the sacred Calendar is that which after the return from captivity received the name of Ab[k]; and in the Jewish calendar it still retains the name of Ab: and in that calendar it is still the fifth month, reckoned from Nisan, though it is the eleventh reckoned from Tisri. In the style and according to the idiom of Josephus, it is the same to which he invariably gives the Macedonian name of Löus. We hope to demonstrate some time or other, if we are permitted to treat of the Lunar Corrections of the Greeks, that the Lunar calendar recognized by Josephus, on the months of which, instead of the names which they bore among the Jews his countrymen, he imposed these, taken from the Macedo-Syrian calendar of his own time, was altogether the same with that of our Prolegomena. With respect then to the next question, what was the Julian date of the 7th of Ab, A. D. 70; we answer that, if it was the 7th of the Löus of Josephus in the same year, it was the 7th of the Ab of our calendar, Period vi, Cycle v. 4: consequently August 2 A. D. 70. If so, and the 7th of Ab or Löus, that year, was the

* The true year of the first destruction was B. C. 588. If the reader desires to see this tradition confirmed by the actual proof of the coincidence in question from the succession of the Courses down to that point of time, he may see it in our Prolegomena, Cap. ii. 89 sqq.

k Fasti Catholici, Introduction, 80.

Feria septima or Sabbath; August 2 A. D. 70 must have been the Feria septima or Sabbath also. Now the Dominical letter A. D. 70 being E August 2 was a Saturday. It thus appears that in the date of this most important and memorable event the tradition of the Jews is confirmed by our calendar; and our calendar in its turn is attested and authenticated by the tradition of the Jews. There are no doubt difficulties and objections connected with this conclusion, which we have no wish to conceal; but for their consideration, and as we trust their explanation, we refer to the note subjoined *.

* Notwithstanding the doubts which some of the learned have expressed respecting the restoration of the Courses after the return from Captivity, and the regularity of the succession from that time forward down to the destruction of the second temple; nothing in our opinion admits of being more certainly proved both by the testimony of Scripture, and by that of the Book of Maccabees, and by that of Josephus, and by that of contemporary and profane history, and by the tradition of the Jews, and lastly by the matter of fact, attested and authenticated throughout by the testimony of the Hebdomadal cycle; the course of which is not to be distinguished from that of the Courses themselves. The proper proof of this point however belongs to the chronology of the Old Testament. One branch of the argument, (the confirmation of the succession of the Courses by that of the Hebdomadal cycle,) was treated of and illustrated from a certain point of time downwards in our Prolegomena [1]: and the conclusions there established may be relied upon as true. They are confirmed by testimony, as well as by calculation. The subject of the entire succession of the Courses, from the dedication of the first temple downwards, admits of being treated in the same manner; and with the same satisfactory results. But at present we shall refer only to the testimony of Josephus, and in one instance; viz. where he is speaking of the first institution and division of the Courses of the Priests and of the Levites by David: *Διέταξε δὲ μίαν πατριὰν* (i. e. Ephemeria or Course,) *διακονεῖσθαι τῷ θεῷ ἐπὶ ἡμέρας ὀκτὼ ἀπὸ σαββάτου ἐπὶ σάββατον. καὶ οὕτως αἱ πατριαὶ πᾶσαι διεκληρώσαντο .... καὶ διέμεινεν οὗτος ὁ μερισμὸς ἄχρι τῆς σήμερον ἡμέρας. ἐποίησε δὲ καὶ τῆς Λευϊτίδος φυλῆς εἴκοσι μέρη καὶ τέσσαρα. καὶ κληρωσαμένων κατὰ τὸν αὐτὸν ἀνέβησαν τρόπον ταῖς τῶν ἱερέων ἐφημερίσιν ἐπὶ ἡμέρας ὀκτώ* [2]. This declaration of the state of the case in his own time as still the same as at first, from Josephus, ought to be decisive. He was a Priest himself, and belonged to the first order, that of Joarib [3]. He could not be ignorant of the truth

1 Cap. ii. p. 85 to 124.

2 Ant. Jud. vii. xiv. 7. Cf. xi. iv. 1. 2 : 7 : v. 8 : xii. iii. 3 : vi. 1 (cf. 1 Mace. ii. 1): xiv. ii. 2. 1. Bell. 1. vii: 4. 5: ii. xv. 3. 4. Contra Apion, i. 7.

3 Vita, 1.

on such a matter of fact as this; and there is no conceivable reason why we should suppose that he could deliberately have asserted any thing concerning it contrary to the truth.

Now this statement of his that each of the Courses served *eight* days at a time must always by implication have been an argument that they entered on the Sabbath and went out on the Sabbath; and that consequently a part of two Sabbaths in sequence entered into the term of service of each. Otherwise, it would be contrary to the truth: for it is certain that the absolute length of the service of each Course was only *seven* days, one week or Hebdomadal cycle. But the rule of succession was Ἀπὸ σαββάτου ἐπὶ σάββατον; from a certain time on *one* Sabbath to the same on the *next*: such, that a part of both Sabbaths necessarily came in the same term of office. And that being the case, it is an obvious inference from it that the Courses could not have relieved each other *at sunset*; that is at the proper beginning of every noctidiurnal cycle among the Jews, and of that of the Sabbath as well as the rest: otherwise more than one Sabbath could not possibly have entered into the term of service of the same Course; nor could the term of service have been represented as a term of eight days in any sense. It could never have been represented as any thing but a term of seven days.

The term of service however might still have been represented as Ἀπὸ σαββάτου ἐπὶ σάββατον, if the actual rule was for the Courses to relieve each other at sunrise on the Feria septima or Sabbath *. But the truth is, the precise period of the day at which they relieved each other, in the time of Josephus, was *noon*. This is distinctly to be collected from the Libri Contra Apionem [4]: Mane etiam aperto templo oportebat facientes traditas hostias introire: et meridie rursus dum clauderetur templum— Licet etiam sint tribus quatuor sacerdotum,.. fit tamen observatio particularium per dies certos; et his transactis alii succedentes ad sacrificia veniunt: et congregati in templum *mediante die* a præcedentibus claves templi et ad numerum vasa omnia percipiunt, &c. This point then being established, that the Courses in Josephus' time relieved each other on the *Sabbath*

* And this is the manner in which it appears to have been traditionally represented by the Rabbis themselves. Scaliger (De Emendatione, Notæ De Ephemeriis 55): Unde ... Liber Liturgiarum distinctus in septem dies Hebdomadis civilis; quot scilicet dies singulæ ephemeriæ operabantur: nempe a matutino sacrificio sabbati ad matutinum sacrificium insequentis sabbati. nam Liber Liturgiarum ita habet: .... Sabbato autem adjiciebant benedictionem unam ephemeriæ illi quæ exibat ex ministerio. The blessing of the people by the priest was the last thing done in the daily service of the Course; once in the morning after the morning sacrifice, and again in the evening after the evening sacrifice. To reserve the blessing of the morning of the Sabbath for the Course which was to go out on that day necessarily implies that even on that day it must continue in office until after the close of the morning sacrifice; and that would never be much before noon.

[4] ii. 7. p. 1244.

and at *noon*, let the reader consider the circumstances, as related by Josephus, under which the temple was set on fire; and say whether they do not contain internal evidence that the precise time of the day when it was set on fire was immediately *after noon*: and therefore, if the day itself was the Sabbath, just after the order of Courses must have been changed.

i. Mention is made of the *second* hour of this day[5] when the contest began to be renewed; and after that of the *fifth*[5], until which hour it was maintained, and *at* which the Zealots were driven into the inner temple. The particulars of this day are thus brought down to within one hour of noon.

ii. At this period of the contest, the object for which he had been fighting (the undisputed possession of the outer temple) having been gained; Titus with his staff retired to Antonia, where his head-quarters were fixed: Διεγνωκὼς, as Josephus continues[6], τῇ ἐπιούσῃ ἡμέρᾳ ὑπὸ τὴν· ἕω μετὰ πάσης ἐμβαλεῖν τῆς δυνάμεως. It should be remembered that the fifth hour of the day was the usual time in the Roman service of the military ἄριστον: and there is no reason why that might not have been one motive, among others, for Titus' desisting from the further prosecution of the contest just at this point of time[7].

iii. A cessation of hostilities on both sides, at this time of the day, an hour before noon, would allow of the usual relief of the ministering Course by the next in succession, and at the usual time of the day; without any impediment from the contest which had been previously going on in the temple itself: and if the day was actually the Sabbath, and the time of the day was actually about noon, and this temporary relaxation of the contest on both sides actually now took place, there is no reason why we should not suppose that it must have ensued as usual.

iv. With regard to the conflagration of the temple at last, Josephus tells us[8] that, in the absence of Titus and of all the superior officers, and against his positive orders, (for he had determined himself to save the temple if possible,) a common soldier, mounted on the shoulders of *one* of his comrades, cast a lighted firebrand into the inner temple through one of the lattices or windows; and the flames having instantly laid hold of the wood, the whole was soon in a blaze. It is morally certain then that as this could not have been done *before* noon so it must have been done immediately *after* noon. So complete is the proof, furnished by the circumstances of the contemporary narrative of Josephus, of the state of the case as handed down by tradition; that the last Course could scarcely have gone out of office, and the first could scarcely have come in, before the sanctuary itself was wrapt in fire, and all was at an end for ever.

To consider then the day of the month on which this consummation really happened: Three things are to be taken into account; the testimony of Scripture, the testimony of Josephus, and the testimony of the Jewish calendar or of Jewish tradition.

i. The testimony of Scripture can be appealed to, in reference to the

5 Bell. vi. iv. 4. 6 Ibid. 5. 7 Cf. Ibid. 6. 8 Ibid. 5. cf. 7.

present question, on *one* supposition only; viz. That the day of the destruction of the second temple was really the same day of the same month as that of the first. Now two days are assigned to this event in the Old Testament; the 7th of the 5th month [9], and the 10th of the 5th month [10]. It is clear from the context of both accounts that each of these dates is intended of the same occasion and of the same day; and consequently that it must have been one or other of these days. The question then is Can both these dates be equally genuine and authentic? And, if both relate to the same occasion, that must be answered in the negative. The next question then is Which is the true date? which is to be corrected by the other? And here we should be bound to consider that the prescription of antiquity is in favour of 2 Kings xxv. 8, and not of Jeremiah lii. 12: for it is agreed that Jeremiah lii. is not of the same antiquity as 2 Kings xxv. nor even as old as the rest of the Book of Jeremiah itself. It was added after the return from captivity. In all probability indeed there was no difference originally between Jeremiah lii. 12 and 2 Kings xxv. 8; in whatsoever manner that which exists at present might come into being. But in any case, having to choose between two dates, one of which must be the true one, though both cannot be true, we have no right to assume that it is Jeremiah lii. 12 and not 2 Kings xxv. 8; especially if the latter was consigned to the sacred text at the time, and always made part of Scripture, but the former is confessedly later by many years than what it records.

It ought however to be abundantly sufficient to decide the question between the authenticity and authority of these two dates of the same event, one in comparison of the other, that one of them establishes a complete identity between the circumstances of the destruction of the first temple and those of the second in these two most important respects, the order of the hebdomadal cycle, and the order of the Courses, at the time of each; but the other does not: that the true year of the destruction of the first temple being B. C. 588, and that of the second A. D. 70, the seventh of the fifth month B. C. 588 fell on the Feria septima, as the seventh of the fifth month also did A. D. 70: and that a complete cycle of all the Courses was just over on the seventh of the fifth month B. C. 588 [11], as it was on the seventh of the fifth month A. D. 70. Lastly, that the Julian date of the seventh of the fifth month B. C. 588 was August 6; and that of the seventh of the fifth month A. D. 70 was August 2: i. e. even the Julian dates of these two events, each in its proper order of time, were as nearly the same as it was possible for them to be*.

* They could not have fallen nearer to each other, if the lunar date with which each coincided was to be nominally the same; the 7th of the fifth month in each instance. The interval in Julian years, from B. C. 588 to A. D. 70, was 657 years = two Hipparchean Periods of 304 years, and 49 years of a third. If then the Julian date of Ab 7 B. C. 588 was August 6, its Julian date at the end

[9] 2 Kings, xxv. 8. [10] Jeremiah, lii. 12. [11] Cf. our Prolegomena, cap. ii. 90—94.

ii. It is clearly to be collected from the testimony of Josephus that he considered both the month and the day of the destruction of the second temple to have been absolutely the same as the month and the day of that of the first: Παρῆν δὲ, says he [12], ἡ εἱμαρμένη χρόνων περίοδος, ἡμέρᾳ δεκάτῃ Λώου μηνὸς, καθ' ἣν καὶ τὸ πρότερον ὑπὸ τοῦ τῶν Βαβυλωνίων βασιλέως ἐνεπρήσθη: and again [13]: Καὶ μῆνα γοῦν ὡς ἔφην καὶ ἡμέραν ἐπετήρησε τὴν αὐτήν. And as he thus dates the second destruction on the *tenth* of Löus, he was bound on that principle to have dated the first on the same day of that month. Yet in the Antiquities, where he relates the fact of that destruction in the regular order of the history, he dates it on the first [14]: Βαστάσας δὴ ταῦτα ἀνῆψε τὸν ναὸν μηνὶ πέμπτῳ τῇ νουμηνίᾳ, ἐνδεκάτῳ ἔτει τῆς Ζεδεκίου βασιλείας [15], ὀκτωκαιδεκάτῳ δὲ τῆς Ναβουχοδονοσάρου. Such are the inconsistencies which appear in the text of Josephus at present, account for them as we may. If they are to be laid to his own charge, they detract very much from his authority: and if they are not, they are well calculated to take away the force of any objection, founded on the numerical readings of his text at present.

If however we should be permitted to treat *in extenso* of the Macedo-Syrian calendar, we shall have occasion to institute a particular examination of all the dates in Josephus' history of the war, which are given in terms of that calendar; and we hope then to be able to shew that there is reason to suspect his dates just before the capture of the temple: and that his numbers being rectified, and traced from the point where they began to be corrupted, bring out the date of the destruction of the temple at last on the 7th of Löus not the 10th. Add to this that, according to the Roman tradition too, attested by Frontinus [16], Vespasian (which must mean Titus Cæsar) subdued the Jews at last *Saturni Die;* for though Dio asserts the fact of the capture of Jerusalem, (a month later than that of the temple,) on the day of Saturn too, it is much more probable that Frontinus meant this statement of the day of the final destruction of the temple; where the zealots had made their stand all along: and which event to all intents and purposes decided the contest.

iii. The date of the destruction of the second temple consigned to the Jewish calendar, and recognized by the Jewish tradition at present, is neither that of 2 Kings xxv. 8 the 7th of Ab, nor that of Jeremiah lii. 12 and of the text of Josephus as it stands at present, the 10th of Ab; but one which differs from both, the 9th of Ab *. But even the tradition of

of two such Periods, 608 years, A. D. 21 would be August 4: A. D. 59 it would still be August 4: A. D. 67 at the end of 8 years, it would be August 5; and A. D. 70, three years later, it would be August 2. See the Calendar in our Prolegomena, in these years.

* Scaliger, De Emendatione, v. 401. A. B. (De anno Excidii templi): Et tamen Judæi jejunii solenni et nudipedalibus nonum diem Ab consecraverunt non decimum, tanquam nona templum succensum sit. et præterea in libro Angariarum

12 Bell. vi. iv. 5. 13 Ibid. 8. 15 Cf. Ant. Jud. x. viii. 2.
14 Ant. Jud. x. viii. 5. 16 De Strategematis, ii. i. 17.

the Jews at present attests and authenticates the further circumstance and criterion of the true date, that Joarib was the ministering Course at the time. It is still the custom of the Jews on the 9th of Ab to chant a dirge or plaint in reference to the events of that day; from which Scaliger [17] has quoted the following lines:

Die nona mensis hora vespertini temporis
Quum essem in vigilia mea vigilia Joiarib
Introiit hostis et sacrificia sua obtulit:
Ingressus est in sanctuarium injussu Domini.

These words are very significant. They imply that the time of the capture and destruction of the temple, handed down by tradition, was exactly such as we have collected; viz. after the point of noon: that time of the day when the shadows first began to lengthen [18], and to which the Jews gave the name of the early evening. We should by all means compare with these words what Josephus relates of Titus [19]; how, after endeavouring in vain to stop the fire and save the temple, before it was consumed in the flames he entered himself into the sanctuary accompanied by his attendants, and took a view of the interior of it: and how too, after this, when the Roman soldiers had got undisputed possession of the temple, the first thing they did was to offer sacrifice to their standards (their eagles) there [19].

Introiit hostis et sacrificia sua obtulit.
Ingressus est in sanctuarium injussu Domini.

It thus appears that if the true day of the event was the 7th of Ab, and the Sabbath, and the true time of the day was noon, or soon after, and the last Course had just gone out, and the first had just come in, even the Jewish tradition confirms the history of the destruction. And yet it is singular and at first sight inexplicable that though this date of the 9th of Ab, apart from the Jewish tradition, occurs no where, neither in connection with the destruction of the first temple, nor in connection with that of the second, in the Jewish calendar it is assigned to both. The entry in that calendar, opposite to Ab 9, is Jejunium. Decretum contra patres nostros ne ingrederentur in terram Judæam *—Desolatio templi prioris et

quas... vocant, diserte scribitur, Judæos quinta hebdomadis jejunare quia eadem feria templum a Chaldæis destructum—v. 474, 475: Rabbi Jose scribit templum sub Tito dirutum die nona Ab, vespera Sabbati anno Sabbatico. (This statement is remarkable. A.D. 70 was really the latter half of a Sabbatic year, though not by the modern Rabbinical cycle of that kind.)—vii. 651: Dies Angariarum: Ab ix. Decretum contra patres nostros Judæos, ne synagogas cogerent in Judæa, vel ne ingrederentur in terram Judæam. desolatur Templum prius et posterius—v.i. 652: Hæ sunt dies quibus indicuntur Angariæ ex lege. in illis non estur non bibitur usque ad vesperam.

* This has been understood to refer to the decree of Adrian, after the second

17 De Emendatione, Appendix, p. 56. 18 Cf. our Dissertations, iii. 165.
19 Bell. vi. iv. 7: vi. 1.

posterioris: from which it would appear that it must have been a day already memorable in their annals as the date of the decree of Kadesh-Barnea, B. C. 1559, before it became so on account of any other national calamity, like that of the destruction of the first or of the second temple.

The disposition to heap on this *one* day the whole burden of the national visitations, or that of the greatest and heaviest of them, appears in these traditions relating to it. And yet there is another coincidence, recorded in reference to this day, which we have not yet mentioned; perhaps the most significant of all: viz. That on this day, Ab 9 too, in the war of Adrian, in the rebellion of the Jews under Bar-Cocab, the great Pseudo-Messias, abetted by Rabbi Akiba, Bethar or Bitter was taken, and razed to the ground. Let us hear what Lightfoot has extracted from the Talmud[20]. "On the 9th day of the month Ab the decree came out against Israel in the wilderness, that they should not enter into the land. On it was the destruction of the first Temple; and on it was the destruction of the second. On it the great city Bitter was taken, where there were thousands, and ten thousands, of Israel, who had a great king over them (Ben-Cozba*), whom all Israel, even their greatest wise men, thought to have been Messias. But he fell into the hands of the Heathen, and there was great affliction, as there was at the destruction of the Sanctuary. And on that day, a day allotted for vengeance, the wicked Turnus Rufus ploughed up the place of the temple, and the places about it, to accomplish what is said, 'Sion should become a ploughed field.'"

The whole of the mystery connected with this date of the ninth of Ab, if it was really that of the capture of Bitter and of the catastrophe of the war of Bar-Cocab, is explained by these words, *a day allotted for vengeance.* We had occasion to consider the beginning and the end of this second Jewish war in our Dissertations[21]. Its true commencement appears to have been in A. D. 127 and its termination in A. D. 135. This latter year, in the Jewish calendar, continued until then, answered to Period vi. Cycle viii. 12. The first of Nisan that year bore date April 2, the first of Ab July 29; that is each two days later than A. D. 70. These *two* days made all the difference between Ab 7 and Ab 9. A. D. 70, as we have seen, the Dom. Let. being E, Ab 7 August 2 fell on the Saturday or Sabbath; and A. D. 135, the Dom. Let. being B, Ab 9 or August 6 fell on the Saturday or Sabbath also.

If then you substitute the 9th of Ab for the 7th of Ab, the circum-

Jewish war; by which the Jews were prohibited from setting foot in Judæa. It is plainly however, in our opinion, first and properly intended of the decree of Kadesh-Barnea. And yet Adrian's decree might have been issued on or about Ab 9 too.

* Id est, Filius Mendacii: so called after the proof of his imposture by the event. Bar-Cocab meant Filius Stellæ.

20 Works, Vol. i. 362. Parergon, on the Fall of Jerusalem, sect. i.
21 Vol. iv. 98. Appendix, Diss. xviii.

iii. *Hebdomadal character of* A. D. 67. *Date of the entry into office of the Course of Jachin.*

This year is the 95th of the Period; in which the Hebdomadal character according to the cycle of the Period was B, according to the common solar cycle was D.

A fact is on record concerning this year, the second of the Jewish war; viz. That the Zealots, who at this time had possession of the temple at Jerusalem, there being no regular high priest for the time being, constituted Phinehas, an inferior priest of the Course of Eniachim or Jachin, this year high priest *extra ordinem*[e].

It is clear from the context of these events before and

stances of the destruction of the Temple A. D. 70 would be exactly parallel to those of the catastrophe of Bitter A. D. 135. And that was a substitution which the Jews of later times would have little scruple in making; for it is clear that they studiously endeavoured to discover the counterpart of the calamities of the first war in those of the second, and vice versa: and, if these wars did in reality approach so nearly to a coincidence with each other, that the same month, and the same day of the month, within two days, and the same Feria of the Hebdomadal cycle, sealed the fate of both, nothing is more probable *a priori* than that the true date of the later event would ultimately determine the traditionary one of the former. The catastrophe of Bitter was more likely to be remembered than that of Jerusalem. It was not only much later in the order of time, but in the opinion of the Rabbis of subsequent times much greater and more to be lamented. The disappointment of the national hope on this latter occasion was more keenly felt than even the destruction of Jerusalem itself, and the desolation of the Temple. Besides it was from the end and event of this second war that their state of expatriation and exile was to be dated. They did not become outcasts from their own country in consequence of the former war; but they did so in consequence of this: and very possibly the decree of expulsion, which, under the severest penalties, forbade them to set foot in Judæa, might have been passed on this ill-omened day itself. It is easy to see then that, ever after the consummation of this last and worst of their national calamities, the ninth of Ab must pass among them for the day κατ' ἐξοχήν *allotted for vengeance;* and that, if it had once acquired that character, the worst and greatest of former visitations, and in particular those which most nearly resembled this last in other respects, (such as the destruction of the first Temple and that of the second,) would ultimately be found dated on the same day.

[e] Josephus, De Bello, iv. iii. 6–8: Ant. Jud. xx. x. 1. Cf. our Prolegomena, cap. iii. pag. 112 sqq.

after[e] that this appointment must have coincided with the usual season of the day of Atonement; and that the final end of this act of the Zealots itself was that when *that* day actually arrived there might be an high priest in office of their own designation, ready to minister on the occasion. It appears too that the Course of Jachin to which this Phinehas belonged was the officiating Course at the time[e]. Now this Course was the 21st. It follows that the 21st Course must have been in office on or about the tenth of Tisri A. D. 67.

In the style of Josephus the tenth of Tisri was the tenth of Hyperberetæus: and the tenth of either A. D. 67 in the calendar followed by Josephus (Period vi Cycle v year 1) fell on October 6, and October 6 on the Feria quinta, or Thursday. If Jachin then was actually in office on Tisri 10, Thursday October 6, it must have entered on Tisri 5 Saturday October 1. How then does this fact, that the 21st Course entered on office upon Tisri 5 October 1 A. D. 67, agree with the other, already ascertained, that the first Course entered upon office on Ab 7 August 2, three years later, A. D. 70? From Tisri 5 A. D. 67 to Ab 7 A. D. 70 in noctidiurnal and annual lunar time the interval was exactly 1036 days; and from October 1 A. D. 67 to August 2 A. D. 70 in noctidiurnal and annual solar, in the sense of Julian, time it was just the same. In 1036 days there would be 148 weeks exactly; and in 148 weeks there would be six cycles of all the Courses (24 in number), and four Courses over and above of a seventh cycle. If then the 21st Course came into office on Tisri 5 October 1 A. D. 67 it would enter on office again for the seventh time on Thamuz 9 July 5 A. D. 70 (28 days before Ab 7 or August 2 the same year); the 22nd Course would enter on Thamuz 16 July 12; the 23rd on Thamuz 23 July 19; the 24th on Thamuz 30 July 26; and the first (Joarib) on Ab 7 August 2: and every one of these days would be a Sabbath; as in fact according to the Hebdomadal cycle of the Period and in that year they are all seen to have been. And thus every thing would be consistent. If Jachin was the Course coming into office Tisri 5 October 1 A.D. 67; Joarib must have been the Course coming into office Ab 7

[e] Josephus, De Bello, iv. iii. 6–8: Ant. Jud. xx. x. 1. Cf. our Prolegomena, cap. iii. pag. 112 sqq.

August 2 A. D. 70: and if Joarib actually came into office Ab 7 August 2 A. D. 70, Jachin must actually have come into office Tisri 5 October 1 A. D. 67. Neither of these things can be called in question without involving the other. Yet the fact of each rests on a distinct and independent testimony; that of the former on the testimony of Josephus, that of the latter on the uninterrupted tradition of the Jews.

iv. *Hebdomadal character of* A. D. 66. *Date of the appearance of Cestius Gallus before Jerusalem.*

This is the 94th year of the Period. Its Hebdomadal character, according to the cycle of the Period, was C; according to the common solar cycle it was E. It was the first year of the Jewish war under Nero and Vespasian. In this year, Cestius Gallus, the governor of Syria, when the rebellion had only just broken out and it was not yet too late to suppress it, marched upon Jerusalem; and we have the testimony of Josephus, who was himself in the city at the time and an eye-witness of all that happened there on this occasion, that the day of the week on which he first appeared before it was a Sabbath, the Feria septima or Saturday: a testimony which it might be supposed *a priori* every one would allow to be above all exception, and decisive of that fact at least.

We considered the circumstances of the proceedings on this occasion in our Dissertations on the Principles and Arrangement of an Harmony of the Gospels[f]; and we hope to consider them again even more particularly on a future occasion. The day on which Cestius thus appeared before the walls of Jerusalem, and on which he was attacked by the Jews as soon as he appeared, was the 24th of Hyperberetæus or Tisri. The 24th of Tisri therefore A. D. 66 was a Sabbath. In the calendar, followed by Josephus, the calendar of our Prolegomena, it corresponded to October 2; and the Dominical letter of the year being C, October 2 was the Feria septima or Saturday. What more complete proof of the truth of our Hebdomadal cycle, for this particular year, from the testimony of a contemporary and an eyewitness, could

[f] Vol. i. 422–426.

be desired than this? Yet the truth of the cycle for this one year of the xxxiiird Type or Period being thus ascertained; it vouches for its truth throughout the Period from first to last.

Now the 24th of Tisri, October 2, A. D. 66 being a Saturday, the 14th of Tisri September 22 the same year must have been a Wednesday. The 7th of Ab A. D. 70 being a Saturday, the 14th of Ab the same year must have been a Saturday also. Let it be supposed that we knew nothing as yet but this *one fact*, that the 14th of Tisri A. D. 66 was the Feria quarta: and let it be required to determine from that the proper feria of the 14th of Ab A. D. 70.

From Tisri 14 A. D. 66 to Ab 14 A. D. 70 the interval in months could be neither more nor less than *forty-eight*; and forty-eight synodic lunations of any standard which could be assumed would not contain more than 1417 days and nights, and eleven hours of mean time and 14 or 15 minutes more: forty-eight synodic lunations, cyclically reckoned, (i. e. according to the cycle of a calendar,) would not contain more than 1417 days and nights complete. In 1417 days there would be 202 weeks, and three days over of the 203rd. Consequently, if the 14th of Tisri A. D. 66 was the Feria 4ª, the 14th of Ab A. D. 70 would be the Feria 7ª.

v. *Hebdomadal character of* A. D. 30. *Lunar date which coincided with the Feria sexta at the Passion.*

This is the 58th year of the xxxiiird Type or Period. Its Hebdomadal character in the Type was F; according to the common solar cycle it must have been A. It was the year of the Dominical Passion. We are more concerned with the true Hebdomadal character of this year than with that of any year of the world besides, except that of the Mosaic Creation, or that of the Fall[g]. We will suppose at present that no more is known about it *a priori* than that the 14th of Nisan on which our Saviour suffered this year must have been the Feria sexta: and thus much every one must allow.

From Nisan 14 A. D. 30 to Ab 14 A. D. 70 the interval in annual lunar time must have been 40 years four months

[g] Fasti Catholici, i. 530 sqq.: ii. 257 sqq.: iv. 634. App. ch. v.

exactly; and these must have contained 499 mean natural or civil lunations. *This* number of mean natural lunations would contain 14735 days and nights, and 18 hours 17 minutes and upwards of mean solar time more; which may be reckoned equivalent to one day more: so as to make up the sum of 14736 in all. In this number of days there would be 2105 cycles of sevens, and one day over of another. If then Nisan 14 A. D. 30 was the Feria sexta, Ab 14 A.D. 70 would be the Feria septima: and conversely, if Ab 14 A.D. 70 was the Feria septima, Nisan 14 A. D. 30 must have been the Feria sexta.

This reasoning is conclusive that Nisan 14 A. D. 30 must have been the Feria sexta, if Ab 14 A. D. 70 was the Feria septima: and that is known to have been the case, from testimony. Moreover the Julian date of Ab 14 A. D. 70 being determinable by testimony to August 9, reckon back 14736 days from August 9 A. D. 70; and you must come to April 5 A. D. 30: which, on that principle, must have been as truly the Julian date of Nisan 14 A.D. 30 as August 9 of Ab 14 A. D. 70. Add to this that the true lunar 14th A. D. 30, and therefore the true Paschal day, the same year, fell on April 5. The proper Passover day by the appointment of the Law could never be any but the lunar 14th, cyclically reckoned between certain terms or limits; which by the rule of the Jews at this period were March 19 and April 17. The lunar 14th of March, March 6, must have been much too early for these limits; the lunar 14th of May, May 4, must have been as much too late. None could have answered in this year to the conditions prescribed but the lunar 14th of April, April 5. In this year it made no difference whether the lunar 14th was taken from the cycle of the calendar or from the heavens directly: for in this year it was so ordered by Providence, as if to preclude all doubt on that point, that both should be the same. The true new moon of March this year, calculated as it is from our Tables without the corrections of Mr. Adams[h], fell out for the meridian of Jerusalem, March 22, at 20 h. 7 m. 25·6 sec. mean time from midnight; and with those corrections, March 22 at 20 h. 33 m. 14·6 sec. mean time: so that the true lunar 14th of that moon bore date April 4 at 20 h. 33 m. 14.6 sec. to April 5 at

[h] P. 288-290. See the Preface.

20 h. 33 m. 14.6 sec.; and nothing could more truly and properly be the lunar 14th than April 5.

SECTION IV.—*Fasti Catholici, Period* XXXIV. A. D. 113 *to* A. D. 225. *On the Paschal Cycle of Hippolytus.* i. *Preservation of this Cycle.*

That Hippolytus, bishop of Portus Romanus*, who suffered by martyrdom in the reign of Decius, was the author of a Paschal cycle would have been known from testimony[i], though nothing had been known of his personal history. The epoch of this cycle too would have been known; and to a certain extent its nature and construction: so far at least as that it must have belonged to the class of Hekkaidekaëterides, or cycles of sixteen years, in general. But beyond this nothing in all probability would or could have been known concerning this cycle, at the present day, had not a marble been discovered at Rome, which after having been providentially buried in the ground for thirteen centuries and upwards was providentially again brought to light; and is still in existence and accessible.

We speak deliberately when we resolve each of these effects, (the concealment of this marble for so long a time and its discovery again at last,) into the Divine Providence. Both Scripture and our own reason concur to convince us that as there is and must be a superintending Providence; so its influence extends to every contingency. Nothing can escape its observation; nothing can happen without its cognizance, without its appointment, or its permission. There is no room in the causation of events for any such principle as chance or fortune, to which the ancients attributed every thing which they could not account for in the ordinary course of things; and a Christian should banish such terms as these

* Portus Romanus is not mentioned in the classical Roman writers. It appears to have grown up, as its name implies, and for commercial purposes, at the mouth of the Tiber; but on the west bank of that river, opposite to Ostia on the eastern one. Cf. our Dissertations on the Principles, &c. iii. 621. In the Philosophumena ascribed to Origen, lately published at the University Press, it is mentioned by name.

[i] Eusebius, E. H. vi. 22. 223, 224. Hieronymus, Opp. iv. 117, 118. De SS. Ecclesiasticis. Hippolytus.

from his vocabulary altogether: or if he uses them it should be only as the conventional language by which it is intended to express after all the agency of Providence.

But whatsoever we may think of the ordinary operation of an intelligence and a power like this in the commonest and apparently the most fortuitous occurrences; there are some occasions on which the finger of Providence is too perceptible not to be recognized, and the effect of its interposition is too important not to be declared and confessed. And such is the case when accident humanly speaking removes for a time out of sight what, if constantly exposed to view, would always have been in danger of perishing; and accident humanly speaking also brings it to light again, after having been long concealed and lost: and when the subject of each of these dispensations, (both of the temporary loss and of the ultimate recovery,) serves a very necessary and important use and purpose, which could not have been served without it.

Now this is precisely that kind of service which the marble in question was calculated to render; so that if the truths which our present inquiries have been the instrument of bringing to light are of any value, are of any use or importance in themselves, are such as deserved to be known; in the same proportion are the utility and value and importance of this marble, which contributes so much to illustrate and confirm them. There are three monuments of antiquity, which for the service they render to the cause of truth at the present day, and in particular to our own inquiries, are invaluable; all which it has pleased the Divine Providence to preserve to our own times: the calendar of Claudius the Tuscan, this Paschal cycle of Hippolytus, and the Constantian calendar. And of these three it is difficult to say which is the most indispensable to ourselves; which we should have found to be most to be desiderated, had it not actually existed. But though the calendar of Claudius certainly serves a greater variety of purposes than either of the other two; this marble of Hippolytus in particular serves *one* purpose, which for the consummation and confirmation of all our preliminary inquiries into this subject of the course of time, from first to last, is *unum instar omnium*. This marble supplies the link of connexion between the artificial or positive

system of time of which we have made use in our Fasti from the beginning of things down to a certain point, and the actual one of the same kind by which it was taken up exactly at that point, and through which it has been continued ever since. It is the key-stone in the arch, which cements both parts of the structure (a *parte post* and a *parte ante*), and makes one building of both. It is the pivot, on which the Julian system of our Fasti, both the positive and the actual, turns alike; the Ἐνδόσιμοι, (as the Greeks would have termed it,) which lets one down into the other, just at the proper time: and neither a moment earlier nor a moment later than the proper time.

This marble connects the Julian reckoning of our Fasti with the actual Julian reckoning when it first came into existence. It is demonstrable from it that the former passed into the latter, or *vice versa* the latter took up and continued the former, just when the necessity of the case required that it should do so; and it enables us to prove, and yet to reconcile to each other, two seemingly contradictory facts: viz. that one and the same year, in the same course and succession of annual time, should have been both a common year and a leap-year; a common year in one of these systems, a leap-year in the other: a common year in the Julian reckoning of our Fasti brought down from the first until then, a leap-year in the actual reckoning of the same kind with which it was identified at that time, and with which it has continued to be identical ever since. That a marble which serves such a purpose as this should have been concealed, and thereby kept in being, for so many centuries, and yet be brought to light again at last, may justly in our opinion be resolved into the Providence of God.

ii. *Description of the Marble.*

Now this marble was dug up at Rome A. D. 1551 in Ædе Laurentiana, as Scaliger terms it. A statue was discovered at that time which represented a figure in a sitting posture; the basis or pedestal serving it for a chair. On examining this pedestal, it was found to be covered with inscriptions in the Greek character; and it was soon perceived that these consisted principally of a Paschal canon or Cycle of 16 years,

divided into two parts or halves; one on the right hand of the sitting figure, containing a laterculus of Paschal terms or Lunar fourteenths, the other on the left, containing a corresponding laterculus of Dominical terms, Ἡμέραι Κυριακαὶ, or Easter-sundays.

It was seen also that this cycle bore date in the first year of the Roman emperor Alexander Severus; and this coincidence would have served at once to identify it with the Paschal cycle which the ancients attributed to Hippolytus: as both consisting of the same number of years, and as bearing date in the first year of the same reign. But to place this identity still more completely out of question, it was also discovered that in the margin of the cycle, on the left hand of the laterculus of Paschal terms, there was a list of titles or subjects of certain works, which agreed exactly with those of Hippolytus, according to Eusebius and Jerome; more or less of which are still extant in the collection which has been made of his remains.

There cannot then be any doubt that the Paschalium, or Paschal cycle, which constituted the principal subject of this whole representation, must have been intended of a production of the same author; nor consequently that in discovering this cycle afresh after so many years of concealment the Christian world was recovering the identical cycle which ecclesiastical antiquity attributed to Hippolytus. And that being the case, it might be supposed that this would be the proper time to lay a facsimile or representation of the marble, or at least of the cycle itself, exactly as it is delineated upon it, before our own readers. But as it may be seen and consulted in Gruter [k], in Bucherius [l], in Scaliger [m], and in particular in Fabricius' edition of the remains of Hippolytus [n], accompanied by the elaborate Dissertations of Bianchini and of other learned men, in illustration and explanation of it; we consider it unnecessary to exhibit an engraving of the marble in this work: though we shall still, at the proper time, exhibit the cycle, or so much of it as may suffice to render the commentary which we propose to found upon it intelligible to our readers.

[k] cxl: cxli.
[l] De Doctrina Temporum, p. 289. 721—735.
[m] De Emendatione Temporum, vii.
[n] Opp. P. 37 sqq.

iii. *Remarks on the constitution of the Cycle.*

The first remark which may be made on the constitution or structure of this cycle is That, though it contains a scheme of *sixteen* years, and though the cycle attributed by Eusebius to Hippolytus is designated as an Hekkaidekaëteris also, yet this Paschalium of the marble is not properly an Hekkaidekaëteris, but merely two cycles of one and the same Octaëteris. The lunar and solar dates of the last eight years on this marble are exactly the same as those of the first. The ancients indeed might give the name of an Hekkaidekaëteris even to a double Octaëteris of this kind; but the Hekkaidekaëteris, as one species of lunæsolar cycle in contradistinction to any other, is a very different thing from the double Octaëteris merely[o]; and whereas the simple Octaëteris is essentially liable to a certain imperfection as a constant measure of annual lunar time, and doubled is liable to it only so much the more in proportion, the Hekkaidekaëteris is liable to no such imperfection, neither of the same kind nor in the same degree: and were it only as true to the sun as it is to the moon perpetually it would be one of the most perfect forms of the lunar and solar cycle in conjunction imaginable[o].

Again, it appears from the list of titles in the margin of this Paschal cycle that one of the works of Hippolytus was a Chronicon (Χρονικὰ), another an Ἀπόδειξις χρόνων τοῦ Πάσχα κατὰ (supple τὰ) ἐν τῷ πίνακι. A Latin version of a Chronicon ascribed to Hippolytus is still extant among his remains[p]; the genuineness of which from its agreement with the known opinions of Hippolytus we had occasion to illustrate in our Dissertations[q]. Nor is there any reason to doubt that though not free from corruptions, especially of numbers, in its present state, it represents upon the whole the actual chronological system of Hippolytus, intended by the Χρονικὰ enumerated on the marble among his other works*. With regard to the Ἀπόδειξις, it is not extant at

* In the work, recently published from the University Press, under the

o Cf. our Fasti Catholici, i. 105. 107.

p Hippolyti Opera, P. 49.

q Vol. iii. 620.

present in any state. But Eusebius appears to mean that in particular by the work De Pascha in general which he attributes to Hippolytus[r]; and, as it must have been a distinct composition from the Χρονικὰ mentioned on the marble along with it, we should be entirely of opinion that it was a work specially connected with and intended for the explanation of the chronology of the different Passovers enumerated in the Canon, as its title itself implies: Κατὰ (τὰ) ἐν τῷ πίνακι.

For in the third place it is to be observed that this cycle of Hippolytus was not proposed as something confined to the *sixteen* years which are actually comprehended by it; but as capable of being applied either backwards or forwards to any extent, and both as a measure of time by cycles or periods of *sixteen* years perpetually, and as a canon or rule of the Christian Easter as carried forwards, and of the Jewish Passover as applied backwards. It has a title prefixed to it, one part of which is as follows: Ἔσται (ἡ δι τοῦ Πάσχα) τοῖς ἑξῆς ἔτεσιν καθὼς ὑποτέτακται ἐν τῷ πίνακι· ἐγένετο δὲ ἐν τοῖς παρῳχηκόσιν καθὼς σεσημείωται. In the first part of this sentence, the reference is to the future; to the Paschal rule and the observance of Easter, according to this Canon, from the epoch of the cycle forwards: in the latter it is to the past; to the same rule and the observance of the Passover itself from the epoch of the cycle backwards. And it must be self-evident that any Paschal cycle, which was considered competent to answer its proper use and purpose at all, must be proposed as capable of this kind of application both forwards and backwards perpetually.

And as it is intimated in the above title that such Passovers for times past were *signified*, (indicated, noted, and marked,) in the table subjoined; so it is certain that in the Canon itself, exactly as it appears on the marble at present, besides the Paschal terms or lunar fourteenths assigned year by year, and besides the feriæ or days of the week, on which

title of the Φιλοσοφούμενα of Origen, reference is made to some chronology of the same author's, compiled and made public before this work itself. And this is among the other arguments that the work in question is really one of Hippolytus', not one of Origen's; for Origen is not known to have been the author of any chronology, Hippolytus is.

[r] E. H. vi. 22. 223, 224.

they were expected to fall every year, numerically represented also; a variety of notices do occur, opposite to different years of the cycle, and in the different vertical columns of the Canon, parallel to each other, of which there are seven in all, each representing a distinct cycle of sixteen years: such as ΓϵΝϵCIC $\overline{\text{XI}}$, opposite to Cycle i. 2: ϵΖϵΚΙΑC, opposite to Cycle i. 3: ΙωCϵΙΑC, opposite to Cycle i. 4: ϵΖΟΔΟC and ΚΑΤΑ ΔΑΝΙΗΛ, opposite to Cycle i. 15: ΠΑΘΟC $\overline{\text{XI}}$, opposite to Cycle ii. 16: and so forth.

The meaning of these intimations appears to have been mistaken by Scaliger[s]; who seems to have thought that they were intended to point out such and such portions of the Scriptures of the Old or of the New Testament as were appointed to be read in the church at Easter, on each of these occasions respectively. But their true meaning was pointed out by Bianchini. It is the final end of these notices to designate certain Passovers, historically recorded in the Old or in the New Testament, or by implication collected from them; and the dates of each on the principles of the Canon, and according to the chronological system of its author.

It is easy to demonstrate the truth of this assertion in the case of the only two Passovers, which appear in this Canon, taken from the New Testament: one that of the ΓϵΝϵCIC $\overline{\text{XI}}$, opposite to Cycle i. 2, the other that of the ΠΑΘΟC $\overline{\text{XI}}$, opposite to Cycle ii. 16. The interval between these in the Canon is just 30 years; and that was the interval which many of the fathers, and Hippolytus among the rest, supposed between the Nativity and the Passion[t]. If then we reckon back 112×2 or 224 years from the 32d year of the Canon, A. D. 253, we come to A. D. 29, Hippolytus' date of the Passion[t]; and the meaning of the entry opposite this 32d year of the Canon is that the date of the Passover which appears in the Canon for that year, Πρὸ η′ Κα. Ἀπρει. viii Kal. Apriles, March 25, the Feria sexta, was the date of the Passover at the Passion. If we reckon back 224 years from the second year of the cycle, A. D. 223, we come to B. C. 2, Hippolytus' date of the year of the Nativity[t]: and the entry opposite to the second year will imply that the date of the

[s] De Emendatione, vii. 726.

[t] Cf. our Dissertations on the Principles, &c. iii. 620.

Passover in the Canon in that year, Πρὸ δ' Νω. Ἀπρει. iv Nonas Apriles, April 2, the Feria 4[a], was the date of the Passover at the Nativity.

The same explanation is no doubt applicable to the rest of these entries; though it is possible that owing to the misapprehension of their meaning by the engraver who transferred them to the marble, or from other causes, errors may have crept into some of them, which may give us some difficulty at present: or that some of them may not stand in their proper place in the Canon. There is no Passover mentioned in the Old Testament in *terms*, which does not occur somewhere or other in this list, and opposite to some one year or other of the seven *sedecennities* of the Canon; and if others also appear there at present, which are not expressly attested by the Old Testament, they are still such as it was manifestly possible for Hippolytus to have inferred for himself: and the grounds or reasons of which might have been explained in the Ἀπόδειξις χρόνων τοῦ Πάσχα, which accompanied the Canon.

For example, the first Passover of all appears in this Canon, that of the Exodus; though entered in the marble, ϵZOΔOC instead of ϵΞOΔOC. The only difficulty is that it comes twice over, once Cycle i. 15, and again Cycle vii. 10. The latter was most probably a repetition of the first through mistake.

There is the Passover EN ϵPHMω *, Cycle ii. 1; i. e. in the second year after that of the Exodus[u]; which confirms the place of this latter in the Canon, as it stands †. And there is the Passover at the Eisodus also[w], under the name of IHCOYC, or Joshua, Cycle iv. 7: and as these stand at the distance of 38 years asunder, one confirms the other, and both are probably genuine.

There are two Passovers, under the name of ϵZϵXIAC, Cycle i. 3, and Cycle ii. 6: the former historical, in the first

* This too comes over again Cycle vii. 12. most probably by mistake there too.

† In strictness indeed the Passover, Numbers ix. 1–5, the year after the Exodus, should have stood next to that of the Exodus, Cycle i. 16.

[u] Numbers ix. 1–5. [w] Joshua v. 10.

year of Hezekiah[x], the latter dated by Hippolytus in his 20th, and no doubt collected by him inferentially on some grounds or other for himself.

There are two Passovers under the name of ΙωϹϵΙΑϹ, Cycle i. 4, and Cycle ii. 6; 18 years asunder: the latter historical[y]; the former consequently in the first of Josiah: and collected by Hippolytus for himself.

There is a Passover Cycle iii. 3, designated ΙΗωΧϹ: wherein we should consider the characters ΧϹ to be an interpolation ‡; and the Passover intended to have been probably something of that kind in the reign of Joash[z], which Hippolytus supposed to have coincided with the time and occasion when he was declared king.

There are four passovers ΚΑΤΑ ΔΑΝΙΗΛ, Cycle i. 15: Cycle ii. 1 and 6: and Cycle iv. 7: the first two of which are two years asunder, as Daniel vii. 1 and Daniel viii. 1 also are. The third was probably intended of Daniel ix. 1; the occasion of the prophecy of the seventy weeks, five years according to Hippolytus after Daniel viii. 1: and the fourth of Daniel x. 1, 33 years after the third; unless this fourth Passover was assigned to iv. 7 by mistake for iii. 7; in which case it would have stood 22 years after the second, Cycle ii. 1: and might have been so dated on the authority of Daniel x. 13 compared with viii. 1.

Lastly, there are two passovers of ϵϹΔΡΑ or Esdras, Cycle ii. 1 and Cycle vii. 15; the first of which may be referred to the 6th of Darius[a], the second to the Passover which might be supposed to be intimated by Ezra in the account of his own journey to Jerusalem: when he stopped for a time on the river Ahava[b]. Nor would the interval between these two Passovers, thus recognized in the Canon, viz. 94 years, be any insuperable objection to this supposition. But we suspect that this second Passover of Esdras

‡ Unless the entire name was really intended of that of the High Priest Jehoiada in the reign of Joash, which in the *o'* is Ιωδαϵ, and by Hippolytus might be written ΙΩΔΑϹ or ΙΗΩΔΑ.

[x] 2 Chron. xxx. 2.
[y] 2 Kings xxiii. 21. 2 Chron. xxxv. 1.
[z] 2 Kings xi. 1—xii. 4. 2 Chron. xxiii. 1—xxiv. 4.
[a] Ezra vi. 19-22: 15.
[b] Ibid. vii. 9: viii. 21-31.

has got out of its proper place; and should have been Cycle iv. 15 instead of vii. 15: in which case, the first of these Passovers of Esdras, Cycle ii. 1, being referred to that of the 2nd of Cyrus[c], this second one, Cycle iv. 15, would be just 46 years after it; and might have been referred to the Passover of the 6th of Darius, as before, after the completion of the second temple: the building of which many of the Fathers, misled by a wrong construction of John ii. 20, supposed to have taken up 46 years; from the 2nd of Cyrus to the 6th of Darius[d].

In each of these cases the Passovers in question are assumed to have occurred a certain number of years before those opposite to which they stand in the Canon; and this number is supposed to have been some multiple of 112 years, or seven cycles of 16 years: to prove or verify each of which assumptions by actual calculation was no doubt the business of the Ἀπόδειξις χρόνων τοῦ Πάσχα κατὰ (τὰ) ἐν τῷ πίνακι, which accompanied the Canon.

iv. *On the principle of the Cycle of Hippolytus.*

The principle of the cycle admits of an easy explanation.

The octaëteris, which combines both a solar reckoning in the sense of the mean Julian and a lunar one on the principles and assumptions peculiar to itself for every eight years in order, is a very perfect measure of the former perpetually; and, if we admit of the standard of the lunar momenta assumed by it, it is a perfect measure of the latter too. In this cycle then the solar and the lunar dates recur to the same relations, and in the same order, every eight years complete; and may be traced either forwards or backwards in cycles of this kind to any extent: always preserving these relations, and in the same order.

But with respect to the return of these same dates, both solar and lunar, to the same order in the Hebdomadal cycle, that is to the same feriæ; the octaëteris contains 2922 mean solar days and nights: and these contain 417 weeks and three days over. If we double the cycle, the number of days contained in it is 5844, and the number of weeks is 834, with *six* days over. It follows that, at the end of one cycle

[c] Ezra iii. 8. [d] Cf. our Dissertations on the Principles, &c. i. 245 note.

of eight years, the hebdomadal dates will be three days in advance of their places in the order of feriæ, at the beginning; and at the end of two cycles, or sixteen years, they will be six: or what comes to the same thing, at the end of every double octaëteris, or cycle of 16 years, while the solar and lunar dates return to the same days of the month as before, the feriæ of each will return not to the same day of the week as before, but to the day *before* it.

The Hebdomadal period therefore of the double octaëteris or cycle of sixteen years is one of 16×7 or 112 mean solar, in the sense of mean Julian years; at the end of which, but not before, every element which entered into its constitution at first, both the solar and the lunar dates or days of the months, and the hebdomadal dates or days of the week, will return to the same relations to one another and in the same order as at first. If then the lunæsolar dates for one cycle of eight years are given, we have only to double the cycle, and we get them for 16 years; and once given for 16 years, they are given for any number of such cycles of 16 years which may be required. And if the proper feriæ of each of these dates, or the days of the week on which each of them falls, are given for *one* cycle of 16 years; it is easy to assign them for *seven* such cycles either forwards or backwards, by counting them one number backwards for every such cycle, until we come to the same feria again, if we are reckoning forwards, and by reading them one number forwards for every cycle, until we come to the same feria again, if we are reckoning backwards. Hippolytus' Canon of 112 years was constructed on these principles: and there is another, somewhat later than his in point of time, yet similarly constructed in every respect; of which too we hope to give an account by and by.

v. *On the Epoch of the Cycle of Hippolytus.*

That the cycle of Hippolytus bore date in the first year of Alexander Severus might have been inferred (though not with certainty) from Eusebius' account of it[e]: Ἐπὶ τὸ πρῶτον ἔτος αὐτοκράτορος Ἀλεξάνδρου τοὺς χρόνους περιγράφει. We say *not with certainty;* because the *prima facie* inference from

[e] E. H. vi. 22. 223, 224.

this account of it is that it terminated rather than began in the first year of Alexander Severus. But the inscription itself places the true meaning of Eusebius out of question. The notice prefixed to the laterculus of Paschal terms is this, Ἔτους ᾱ βασιλείας Ἀλεξάνδρου αὐτοκράτορος: and that which is prefixed to the scheme of Κυριακαὶ ἡμέραι, or Easter days, is this, Ἔτει Ἀλεξάνδρου Καίσαρος τῷ ᾱ ἀρχή.

The first year of the cycle being thus determined; the *epoch* properly so called, from which the reckoning of its Paschal terms takes its rise, was the Ides of April that year: Ἔτους ᾱ βασιλείας Ἀλεξάνδρου αὐτοκράτορος ἐγένετο ἡ δῑ. τοῦ Πάσχα εἰδοῖς Ἀπρειλίαις σαββάτῳ: and in the first year of the Table itself the lunar 14th is set down accordingly on the Ides of April and the Feria septima; and the Κυριακὴ or Easter-day, determined thereby, for the xi Kalendas Maias, the Feria prima.

On this principle the first year of Alexander Severus had already begun to be current, before the day came round which was thus assumed as the epoch of the cycle; that is, before the Ides of April at least: and it might have been expected that the testimony of a contemporary monument like this would have been considered by learned men and chronologers to be decisive on that point. Yet great difficulties have been raised about it; and it has given occasion to much controversy, and to many elaborate dissertations[f]: though the question could not fail to be determined at last, just as common sense must have settled it from the first merely on the strength of this testimony of the Canon of Hippolytus.

We shall not therefore enter on this question ourselves. In a future part of these inquiries of ours it may be necessary to shew that this reign really began March 11 or March 8 A. D. 222, and ended June 19 A. D. 235. It began consequently more than a month before the day selected for the epoch of the cycle; and it is a curious coincidence that as the Ides of April are thus defined by this cycle as a point of time later than the beginning of his reign, yet in its first year, A. D. 222, so are they by two other contemporary monuments still extant, one in Gruter[g], the other in Mor-

[f] Hippolytus, Opp. P. 144 sqq. Eckhel, Doctrina Numm. Vett. vii. 269.
[g] lxxxv. 2.

celli[h]; so that we have at least *three* competent witnesses, if they are required, to the truth of this fact: viz. that the Ides of April, April 13 Roman, were later than the beginning of the reign of Alexander Severus, A. D. 222.

We shall now then exhibit the cycle itself, or so much of it as may suffice for our purpose; and in such a shape as may render it most intelligible to the reader: that is, with the lunar quartædecimæ and their respective feriæ, through the first sixteen years, exactly as they are given in the original; and then the same, accompanied in the usual manner in such cases at present with the years of the cycle, the years of the vulgar Æra, and the Dominical letter: and expressed under their proper Julian as well as their proper Roman dates.

[h] i. 290. cccx.

Cycle of Hippolytus.

Ἔτους ᾱ βασιλείας Ἀλεξάνδρου αὐτοκράτορος ἐγένετο ἡ δὶ τοῦ Πάσχα Εἰδοῖς Ἀπρειλίαις σαββάτῳ ἐμβολίμου μηνὸς γενομένου. ἔσται τοῖς ἑξῆς ἔτεσιν καθὼς ὑποτέτακται ἐν τῷ πίνακι· ἐγένετο δὲ ἐν τοῖς παρῳχηκόσιν καθὼς σεσημείωται. ἀπονηστίζεσθαι δὲ δεῖ οὗ ἂν ἐνπέσῃ Κυριακή.

Ἔτει Ἀλεξάνδρου Καίσαρος τῷ ᾱ ἀρχή. αἱ Κυριακαὶ τοῦ Πάσχα κατὰ ἔτος. αἱ δὲ παρακεντήσεις δηλοῦσι τὴν δὶς πρὸ ἕξ.

	Feria.	Cycle.	U. C.	A. D.	Dom. Lett.	Paschal 14.	Roman.	Feria.	Easter Day.	Roman.	Luna.	
Ἐμ. Εἰδοῖς Ἀπρει.	ζ	*i	975	222	E	Idib. April.	Apr. 13	7	xi Kal. Mai.	Apr. 21	xxii	Pro xv
℟ δ Νω Ἀπρει.	δ	ii	976	223	D	iv Non. Apr.	.. 2	4	viii Id. Apr.	.. 6	xviii	
℟ ϛβ ℟ ια Κα ϛϛ Ἀπρει.	α	iii	977	224	C	xi Kal. Apr. / xii Kal. Apr.	Mar. 22	1	v Kal. Apr.	Mar. 28	xxi	
							Julian.			Julian		
Ἐμ. ℟ ε Εἰ Ἀπρει.	ζ	*iv	978	225	B	v Id. April.	Apr. 9	7	xv Kal. Mai.	Apr. 17	xvi	Corrige xxii Pro xv
℟ δ Κα Ἀπρει.	δ	v	979	226	A	iv Kal. Apr.	Mar. 29	4	iv Non. Apr.	.. 2	xviii	
℟ ιε Κα Ἀπρει.	α	vi	980	227	G	xv Kal. Apr.	.. 18	1	viii Kal. Apr.	Mar. 25	xxi	
ϛϛ Νωναις Ἐμ. Ἀπρει.	ζ	*vii	981	*228	F E	Non. April.	Apr. 5	7	Id. April.	Apr. 13	xxii	Pro xv
℟ η Κα Ἀπρει.	δ	viii	982	229	D	viii Kal. Apr.	Mar. 25	4	iv Kal. Apr.	Mar. 29	xviii	
Ἐμ. Εἰδοῖς Ἀπρει.	γ	*ix	983	230	C	Idib. April.	Apr. 13	3	xiv Kal. Mai.	Apr. 18	xix	
℟ δ Νω Ἀπρει.	ζ	x	984	231	B	iv Non. Apr.	.. 2	7	iv Id. Apr.	.. 10	xxii	Pro xv
℟ ϛβ ℟ ια Κα ϛϛ Ἀπρει.	δ	xi	985	*232	A G	xi Kal. Apr. / xii Kal. Apr.	Mar. 21	4	viii Kal. Apr.	Mar. 25	xviii	
℟ ε Εἰ Ἐμ. Ἀπρει.	γ	*xii	986	233	F	v Id. Apr.	Apr. 9	3	xviii Kal. Mai.	Apr. 14	xix	
℟ δ Κα Ἀπρει.	ζ	xiii	987	234	E	iv Kal. Apr.	Mar. 29	7	viii Id. April.	.. 6	xxii	Pro xv
℟ ιε Κα Ἀπρει.	δ	xiv	988	235	D	xv Kal. Apr.	.. 18	4	xi Kal. April.	Mar. 22	xviii	
ϛϛ Νωναις Ἐμ. Ἀπρει.	γ	*xv	989	*236	*C B	Non. Apr.	Apr. 5	3	iv Id. Apr.	Apr. 10	xix	
℟ η Κα Ἀπρει.	ζ	xvi	990	237	A	viii Kal. Apr.	Mar. 25	7	iv Non. Apr.	.. 2	xxii	Pro xv

The technical peculiarities of the above scheme require no explanation, unless perhaps as regards the characters EM prefixed to certain years of the cycle, and those of ϛϛ prefixed to others.

The former denote Ἐμβολισμὸς, and are to be understood of the lunar years of the cycle; implying that wheresoever these characters occurred the intercalary month necessary to lengthen the lunar year at stated times had previously come in: and the inspection of the scheme itself, or of the march of the dates therein, is sufficient to shew that, as to the *Locus Embolismi* in question, it must always have preceded the place of these characters; yet must have come in the same year.

The latter denote the leap-year in the cycle of solar or Julian years, the year which had the Bissex, or Δὶς ἕξ. These characters are in fact the note for the number six in Greek, ϛ, repeated. They are explained on the marble itself: Αἱ δὲ παρακευτήσεις δηλοῦσι τὴν δὶς πρὸ ἓξ (sc. Καλανδῶν Μαρτίων). And as soon as the years of the cycle are reduced to the Vulgar Æra, they are seen to occur only in the leap-years in that: A. D. 224: A. D. 228: A. D. 232: and A. D. 236.

vii. *On the Roman dates of the Cycle.*

Chronologers without exception have taken it for granted that the Roman dates in this cycle, the Idus Apriles in the first year, the iv Nonas Apriles in the second, and all the rest, translated into the style of the modern Julian calendar are to be understood of April 13, April 2, and the like. Consequently that in the first year of the cycle, A. D. 222, and ever after, the Roman year and the Julian were entirely the same. And though this assumption should turn out at last to have been mistaken, it cannot be denied that the internal evidence of the cycle itself at first sight is calculated to confirm it; in particular by the testimony of the Hebdomadal cycle, and by the Feriæ assigned in the cycle to these Roman dates themselves.

For example, in the first year of the cycle the Ides of April are noted in the cycle for the Feria septima; and A. D. 222, Dom. Let. F, according to the common solar cycle of that year, April 13 was a Saturday. In the second year, the iv Nonas Apriles is marked for the Feria quarta; and A. D.

223 Dom. Let. E April 2 would be Wednesday. So far then April 13 and the Ides of April appear to have been identical in the first year of the cycle, A. D. 222, and April 2 and the iv Nonas Apriles in the second, A. D. 223; and consequently the Julian dates of the cycle, and the corresponding Roman ones, throughout it: and so far it would be unreasonable to blame chronologers for the conclusion to which they have uniformly come on this point; and it would be contrary to the truth to deny that there were always good grounds apparently for coming to it.

But even to admit all this, it was still due to the authority of the cycle, (which is in fact that of Hippolytus its author,) that their attention should have been directed to the following considerations: viz. That, on this principle, though the Hebdomadal epoch of the cycle might have been rightly fixed to the Feria septima, the Lunar epoch could not have been rightly attached to the *fourteenth* day of the moon; and that, though in understanding the Roman date of the epoch of the Julian April 13 they were not making it contradict the testimony of the marble in one very important respect, they were setting it thereby at variance with it in another of equal if not superior importance. No one could deny that in a case of this kind the Lunar epoch was just as important *a priori* as the Hebdomadal, and even more so; nor that the former would require to be determined as carefully and truly as the latter: especially for the decursus of a cycle; which had no object in view except that of defining and fixing a series of similar Lunar terms, all dependent on this first, and all, on the principles of such a cycle, right or wrong in themselves just as the first of all was so. The determination of the Christian Easter, according to the rule of Hippolytus, was entirely dependent on that of his lunar fourteenths; for it could neither be earlier than the lunar 16th according to his rule, nor later than the lunar 22nd. An error of a day in the lunar 14th would lead in its consequences to an error of a day or even a week in the Christian Easter; and it is easy to see that, in comparison of the exact and critical determination of this most fundamental and indispensable of all the conditions of his cycle, its first lunar 14th, any thing else

connected with it, even the feria of the Hebdomadal cycle on which it must also have fallen, would be of secondary importance.

Now if his lunar epoch was actually April 13 A. D. 222; an error of excess amounting to a day in the lunar reckoning of his cycle was admitted *in limine*. Instead of the lunar 14th he must have assumed in the first instance of all the lunar 15th; and his whole scheme of Paschal terms from beginning to end, on the principles of his cycle itself, was a scheme of lunar fifteenths, and not of lunar fourteenths, as it professed to be. An error of this kind, which would vitiate the entire cycle as a true measure of lunar time on its own principles and assumptions, and would defeat and nullify the very end for which it was conceived and proposed, (that of distinguishing the true lunar 15th from the true lunar 14th perpetually,) an error of this kind we say, without such proof as could leave no doubt of the fact, never can be supposed to have been admitted *in limine*.

That the case however must actually have been as we assert, and that if April 13 was really assumed as the true Julian epoch of this cycle, it must have represented the true lunar 15th at the epoch of the cycle, and not the true lunar 14th, is demonstrable. We have calculated both the new moon of March, and the full moon of April, A. D. 222, for the meridian of Rome, from our own Tables; and the results are as follows.

		h.	m.	s.	
Mean new moon,	March 29	23	25	21	mean t. Greenwich
	March 30	0	15	10	mean t. Rome.
True new moon,	March 30	13	3	56·8	mean t. Greenwich
	March 30	13	53	45·8	mean t. Rome.

		h.	m.	s.	
Mean full moon,	April 13	17	47	23	mean t. Greenwich
	April 13	18	37	13	mean t. Rome.
True full moon,	April 13	11	12	0·6	mean t. Greenwich
	April 13	12	1	49·6	mean t. Rome.

The date of the mean new moon in this instance for the

meridian of Rome was as nearly as possible March 30 at midnight; so that the lunar 14th of that moon, reckoned by the Roman rule, could be reckoned so properly from no epoch as that of April 12 at midnight: though it would still be April 12, not April 13, if reckoned from the true new moon, March 30, at 13 h. 53 m. 46 sec. from midnight. In like manner, the true full moon of this new moon, for the same meridian, is seen to have happened almost critically on April 13 at noon or 12 hours from midnight. And that being assumed as the epoch of the lunar 15th, that of the lunar 14th must be assumed as April 12 at noon; and that too reduced to the Roman rule would be the same thing as April 12 at midnight.

On every principle then, the true lunar 14th A. D. 222 must have been April 12, not April 13; and therefore if the Lunar epoch of this cycle of Hippolytus, (the first δι τοῦ Πάσχα, in the first year of Alexander Severus,) was rightly determined and rightly assumed, as its importance required it to be, the Ides of April, the Roman date of this Lunar epoch in the year in question must have coincided with April 12, not with April 13. And though this difference may appear to be παρὰ μικρὸν, and in the opinion of those who have paid only a cursory and superficial attention to such questions as these may pass for a trifling distinction; in reality it is not so: as every one will allow, who is familiar with the controversies relating to the observance of Easter in these times, and with the principles on which the various Paschal canons of ecclesiastical antiquity were constructed. But were we even to waive this objection, and to concede the contradiction of the first principles of the cycle itself, implied in the assumption which we are considering, there are other difficulties remaining, connected with it, which it will not be easy to explain.

viii. *On the double date of the Lunar fourteenth in the* third *and the* eleventh *year of the Cycle.*

In the third year of the cycle, A.D. 224, a double solar, (Roman or Julian,) date is seen to be assigned to the same lunar date, the Paschal 14th of that year, Πρὸ ιβ' Καλανδῶν Ἀπριλίων, xii Kalendas Apriles, March 21 Roman, and Πρὸ ια' Καλανδῶν Ἀπριλίων, xi Kalendas Apriles, March 22 Roman.

It appears too that these two dates are so disposed relatively to each other and to the rest that the second, Πρὸ ια' Καλανδῶν Ἀπρειλίων, March 22 Roman, stands in the regular order of the cyclical dates before and after it; the former, Πρὸ ιβ' Καλανδῶν Ἀπρειλίων, March 21 Roman, stands by the side of the second, not in the regular order of the cycle, but in the margin, on the left of the one which does so stand. And from this fact the natural inference at first sight would seem to be That Πρὸ ια' Καλανδῶν Ἀπρειλίων, March 22 Roman, the date which appears in the third year in the regular order of such terms in the cycle, was a mistake; afterwards discovered, and corrected by the date in the margin, Πρὸ ιβ' Καλανδῶν' Απρειλίων, March 21 Roman.

But that this *prima facie* explanation of this double date in the *third* year of the cycle would not be satisfactory may fairly be argued from the fact that the same double date occurs again, just eight years later, in the *eleventh* year of the cycle; that is, it occurs twice in the cycle, under precisely the same circumstances: once in the third year of the first of the two Octaëterides of which it consists, A. D. 224, and again in the third year of the second, A. D. 232. From this remarkable coincidence chronologers have always drawn the inference that, whatsoever was the reason of these double entries in the same cycle, they were deliberately and intentionally made. Neither of them was a mistake, an accident, or an oversight; afterwards discovered and rectified in this manner.

It is observable also that each of these double dates or entries stands over against a year which has the sign of the Bissex also; that is a leap-year in the regular order of such years in the cycle: the first over against the first such leap-year in the first Octaëteris, A. D. 224; the second over against the first leap-year in the second, A. D. 232. And though there would be necessarily one more leap-year in each of these Octaëterides, and one more is actually recognized by the same mark or symbol of the Bissex in each, (the 7th year of each, A. D. 228 and A. D. 236 respectively,) yet there is no double entry opposite to these other two leap-years of the cycle, like this which stands opposite to the two former. The same solar and lunar date appears in each of

these subsequent instances; and the only one which the law and decursus of the cycle at that point could admit of in each: the Nones of April, April 5 Roman. Another inference then which chronologers have always drawn from these considerations is that, whatsoever might be the true reason of these double entries in these two leap-years of the cycle, it must have been something confined to them, and not common to every leap-year in the cycle besides.

If however the date which appears in each of these instances, in the regular order of the cycle, the xi Kalendas Apriles, March 22 Roman, was no mistake or oversight; that only adds to the perplexity occasioned by it: for the date in the margin, the xii Kalendas Apriles, March 21 Roman, and not this of March 22 in the actual order of the cycle, if not that which appears to be recognized as the true lunar and solar date of the year, is nevertheless that which is required at this period of the decursus of the cycle by the law of the cycle itself.

The Octaëteric cycle differs from the Metonic in a very important respect; viz. that of not admitting of the Lunar *Bissex*, nor consequently of any procrastination of the *Saltus Lunæ*[1]. The standard of the lunar year in this cycle is invariable. In the common years it can be neither more nor less than 354 days, and in the intercalary years neither more nor less than 384. There is no *annus abundans* of 355 or 385 days in this cycle; nor any *annus defectivus* of 353 or of 383. The excess of a day in the standard of the actual Julian year, which occurs once in every four years, in its effect on the annual lunar standard in this lunæsolar period must be taken into account as often as it occurs, and when it occurs; so that the lunar epact in the years of this cycle is always either 11 days or 12 days in the common years of the cycle, and always either 19 or 18 days in the intercalary.

This being the case, since the third year of the cycle of Hippolytus is marked as a leap-year, and the seat of the intercalary day is supposed to have been the usual one in the Julian calendar, the Bissex Kalendas Martias; it follows that as the regular lunæsolar date in the second year was

[1] See our Fasti Catholici, Introduction, 82–84.

the iv Nonas Apriles, April 2 Roman, and the epact of the year (the moon's age on the same day the next year) was necessarily 12, the true cyclical date of the third year, the Solar or Julian date of the lunar 14th at the beginning of the third year required by the law of the cycle, would be April 2 Roman *minus* 12, that is March 21 Roman. Yet the date which actually appears in this year, and apparently in the regular course of things, and in the regular order of such dates in such a cycle, is March 22 Roman.

No one then can deny that in this state of the case there is *prima facie* much inconsistency. It adds not a little to the anomaly that after all the date virtually recognized as the proper entry of the year is March 21 Roman, not March 22 Roman; the date in the margin, not the date in the text. This is demonstrated by the Hebdomadal character of the date, the *feria prima*. The lunar 14th of this year fell on a *Sunday*; and the year being A. D. 224, if the Dom. Let. of the year be assumed to have been C, March 22 must have been a Monday: March 21 only could have been a Sunday.

The lunar date of the year itself contributes to confirm this conclusion; if it was truly the lunar 14th. We have calculated the new moon of March A. D. 224 also, for the meridian of Rome; and found as follows:

		h.	m.	s.	
Mean new moon	March 7	17	2	41	mean t. Greenwich
.. ..	March 7	17	52	30	mean t. Rome
True new moon	March 7	18	20	3·3	mean t. Greenwich
.. ..	March 7	19	9	52·3	mean t. Rome.

The lunar 14th of this moon then could not be dated later than March 21 at midnight; and in strictness would bear date March 20 at 19 h. 9 m. 52 sec. from midnight. But it might be reckoned, and agreeably to the Roman rule, as March 21 at midnight. It is clear then that the Julian March 22 this year could have represented nothing but the lunar 15th: March 21 only could have represented the lunar 14th.

It is no wonder therefore that chronologers have always been struck by this peculiarity in the details of the cycle; and hitherto have been much perplexed and puzzled by it. In the elaborate Dissertation of Bianchini indeed, premised

to Fabricius' edition of Hippolytus[k], we find no express allusion to it; from which we may probably conclude that, as he could neither be ignorant of its existence nor yet have considered it unworthy of notice, if he has passed it over in silence it must have been because he had no satisfactory explanation of it to propose. Let us hear however what Scaliger has said concerning it[l].

Πρὸ ιβ' πρὸ ια': Hic annus est bisextilis. sed quare duæ dies continuæ appositæ sint a. d. xii et a. d. xi Kal. Apriles, cum in reliquis annis bisextilibus hoc non fiat, caussam comminisci non possum. quod mihi mirum videtur: præsertim cum semper litera C. assumatur, et ideo xxi Martii, sive xii Kal. April. nam eo anno terminus notatur feria prima..... ita in anno xi invenies, ita etiam semper in reliquis Heccædecaeteribus: ubi semper xxi non xx (xxii) Martii assumitur.

The same acknowledgment of the difficulty thus occasioned is made by Bucherius[m].

Illud ad rem maxime nostram scire mallemus, cur in tertio octaeteridos anno geminos præter solitum quartædecimæ Paschali dies assignet, xii et xi Kalendas Apriles. est quidem iste annus cycli tertius bissextilis. sed est æque septimus, ad quem tamen nihil ejusmodi notat. rursum illud *et xi* videtur superflue geminari, quia tantum una Dominicalis littera, et quidem ea quam intercalatio parit, omnibus annis assumitur: quæ ex feriis et dominicis hic designatis xii dumtaxat non xi Kalendas Apriles respondet, ut ante nos Scaliger animadvertit. nobis quidem nihil hactenus occurrit quo nodum hunc solide solvere valeamus.

ix. *On the explanation of the double date in question.*

The ultimate source of all this difficulty, and of all the confusion and inconsistency in which this part of the arrangements and details of the cycle appears to be involved, can be resolved into nothing but an ignorance of the true relation of the Roman year at this time to the Julian properly so called; a relation of which no chronologer of modern times ever was or ever could have been aware heretofore: but which the preceding inquiries into the actual administration

[k] Pag. 93 sqq. [l] De Emendatione, vii. 725 C. D. [m] De Doctrina Temporum, 299.

of the Julian Correction at Rome, from B. C. 45 down to this time, have served to clear up and ascertain. The truth on this point being once understood; there is no peculiarity in the constitution or details of this cycle of Hippolytus, which it is not competent to explain.

For ii. the Kalends of January U. C. 975 falling on December 31 A. D. 221; the Kalends of April fell on March 31 A. D. 222, and therefore the Ides of April on April 12: and the Ides of April U. C. 975 according to the testimony of the cycle itself having been the Feria septima, April 12, A. D. 222, must have been the Feria septima also. And so it appears from our Fasti it was. For the Hebdomadal character of the year being E April 12 was Saturday.

ii. April 12 A. D. 222, as we have shewn from actual calculation, being the true lunar fourteenth of that month in that year; the Ides of April U. C. 975 must have been so too. The Lunar epoch of the cycle therefore, attached to this lunar term as the first of the series of lunar fourteenths which it proposed to exhibit perpetually, instead of being loosely and generally determined, was assumed and fixed with all the precision and exactness which was possible, or which the nature of the case required.

iii. The Kalends of January U. C. 976 falling December 31 A. D. 222; the iv Nonas Apriles, April 2 Roman, the same year fell on April 1 A. D. 223: and April 2 Roman that year, according to the testimony of the cycle, being the Feria quarta, so must April 1 A. D. 223 have been. And so by the Hebdomadal cycle of our Fasti it was. The character of the year was D; and April 1 was Wednesday.

iv. The Kalends of January U. C. 977 falling on December 31 A. D. 223, the Kalends of February would fall on January 31 A. D. 224. And if U. C. 977 in the Julian reckoning of the years of the city may be assumed to have been leap-year, and A. D. 224 in the Julian reckoning properly so called to have been common; the 29th day of February Roman U. C. 977 would fall on February 28 Julian A. D. 224, and the Kalends of March Roman on March 1 Julian. The 21st of March Roman U. C. 977 and the 21st of March Julian A. D. 224 on this principle would be one and the same. Hence if March 21 Julian was the true lunar fourteenth of this month

in this year, (as we have seen from actual calculation that it was,) March 21 Roman must have been so too. And if March 21 Roman was the Feria prima U. C. 977 March 21 Julian A. D. 224 must have been so too. And according to our Fasti it was so. The Dom. Let. of the year, after the month of February, was C: and March 21 was Sunday.

Now that March 21 Roman U. C. 977 must have been the Feria prima may be proved from the fact that April 13 Roman U. C. 975 was the Feria septima. For if April 13 Roman U. C. 975 was the Feria septima, March 23 Roman must have been so too; and therefore March 21 Roman, U. C. 975, must have been the Feria quinta. If so, then the next year, U. C. 976, March 21 Roman must have been the Feria sexta; and the year after that, U. C. 977, (if that was a leap-year at Rome and had the usual bissex,) it must have been the Feria prima. This is or ought to be decisive that the third of these years, U. C. 975, 976, 977, must have been leap-year *de facto* at Rome; and that each of the two which preceded it must have been common. And this only in the cycle itself has the symbol of the leap-year attached to it.

Thus far then all is consistent and all is intelligible. Yet on this principle the proper entry of this year, U. C. 977 A. D. 224, and that which is *de facto* recognized and adopted in the cycle itself in that capacity, must have been March 21, the xii Kalendas Apriles. What then shall we say to the other, which appears in this third year of the cycle too, and apparently in the regular order of the cycle also, March 22, the xi Kalendas Apriles?

The most obvious explanation of these two dates, each of which appears to be thus recognized as having an equal right to the place which it occupies in the cycle, is that after all there is probably no difference between them. If both stand at the same point in the decursus of one and the same cycle, and both in the regular order of such a cycle where they stand; if neither was a mistake for the other and neither a correction of the other; common sense can draw no other inference from these facts except that one must be virtually the same as the other: they may be nominally different, but they must in reality be the same.

Now it is easy to see that these two Roman dates, the xii

Kalendas Apriles and the xi Kalendas Apriles, March 21 Roman and March 22 Roman respectively, would be in reality the same, and would both agree with, and both be represented by, the same Julian term March 21, if you reckoned the latter from February 28 and the former from March 1: that March 22 Roman reckoned from February 28 Julian must be altogether the same as March 21 Roman reckoned from March 1 Julian.

It is evident also that, as the Kalends of January U. C. 977 bore date December 31 A. D. 223, if this year in the years of the city was treated as a common year, the Kalends of March would fall on February 28 A. D. 224. And if A. D. 224 was a common year, not a leap-year, March 22 Roman would fall on March 21 Julian; and the Feria of March 22 Roman would be the same as that of March 21 Julian. But if this year, in the years of the city, U. C. 977, was treated as leap-year, and A. D. 224 as before was a common year, not a leap-year, then the Kalends of March would fall on March 1 A. D. 224, and the Feria of March 21 Roman would be the same as that of March 21 Julian.

It seems then that nothing is necessary to explain this double entry in the present instance except that the Julian year, A. D. 224, which at this particular point of time corresponded to U. C. 977 in the years of the city, should in any case be considered and treated *de facto* as a common year, not as a leap-year; and that the year of the city which corresponded to this, viz. U. C. 977, should be considered and treated as liable to a double contingency, that of being a *common* year, and that of being a *leap*-year, *pro re nata*. If treated *de facto* as a common year, the proper Roman date required in this third year of the cycle must be March 22: if treated *de facto* as a leap-year, it must be March 21. But in either case, it must coincide alike with the same Julian term, March 21; and in either case the proper Feria of March 22 Roman or March 21 Roman, U. C. 977, must still be the same as that of March 21 Julian A. D. 224. A distinction like this is or should be familiar to every one at present. It is nothing more nor less than that of a given Gregorian and a corresponding Julian date. If U. C. 977, at that period in the Julian Correction, had been made a com-

mon year, it would have become Gregorian *pro tempore;* if it was treated as a leap-year, it continued to be Julian. In the former case March 22 Roman would have been absolutely the same as March 21 Roman in the latter; except in name alone.

x. *On the derivation of the Cycle of Hippolytus from an older one of the same kind.*

In order then to the final explanation of this distinction, we observe that the cycle of Hippolytus which we have hitherto been considering, whether an Ὀκταετηρὶς or an Ἐκκαιδεκαετηρὶς, was not something which now came into being for the first time; i. e. its epoch was not assumed without reference to any preexisting cycle of the same kind, and previously in use.

We may infer this fact from the terms of the preamble or preface, premised to it, part of which has been already quoted; and the whole is as follows: Ἔτους ᾱ βασιλείας Ἀλεξάνδρου αὐτοκράτορος ἐγένετο ἡ δῑ τοῦ Πάσχα Εἰδοῖς Ἀπρειλίαις σαββάτῳ, ἐμβολίμου μηνὸς γενομένου· ἔσται τοῖς ἑξῆς ἔτεσιν καθὼς ὑποτέτακται ἐν τῷ πίνακι· ἐγένετο δὲ ἐν τοῖς παρῳχηκόσιν καθὼς σεσημείωται. ἀπονηστίζεσθαι δὲ δεῖ οὗ ἂν ἐνπέσῃ Κυριακή. The important words here are these, Ἐμβολίμου μηνὸς γενομένου. It is thereby implied that if the Paschal 14th this year fell both on the Ides of April and on the seventh day of the week, it was because an intercalary month had entered previously into the lunar reckoning of the cycle; and that, had not such a month preceded and been taken into account, neither of these things would or could have been the case.

Now what has the lunar 14th to do with an intercalary month, except in the reckoning of a cycle? and in this case, that of a Paschal cycle? *Per se*, the lunar 14th has no connection with one month more than another. Every month has such a lunar 14th; and some may have even two. But in the reckoning of a cycle, and especially a Paschal cycle, which is limited by certain terms or extremes, the lunar 14th must fall between these terms or extremes, and therefore only in some one month; and whether it so falls in a particular year or not, or in one year differently from another, de-

pends on nothing so much as the distinction of years in the cycle itself into common and intercalary, and whether in a given instance there has been an intercalary month or not.

Let it be observed too that in this preamble of the cycle the lunar 14th in question is set forth and represented as having been already recognized and designated as the Paschal 14th, before it was adopted in that capacity by Hippolytus, and made the epoch of his cycle. It did not become the Paschal 14th in this year by virtue of its having been adopted as the epoch of his cycle in the same; but it had clearly served as the Paschal 14th before it was adopted as the epoch of his cycle: and the reason why it was adopted in that capacity for the use of his cycle was this very fact, that it had already served in the same capacity for the actual Paschal 14th of the year. In short so clear, in our opinion, is the inference, deducible from the preamble of the cycle, that the cycle to which it was premised was taken from some other previously in use, that we can only express our wonder that it should not have occurred to Scaliger, to Bucherius, or to Bianchini, to draw this inference from it long ago.

This inference however being admitted, it is perfectly allowable to advance a step further; and to assume that this older cycle, from which Hippolytus has borrowed the epoch of his own, was an octaëteris like his own. And that too being conceded, we may probably arrive at the epoch of this older cycle by going back just *eight* years from U. C. 977 A. D. 224, the year in the cycle of Hippolytus which exhibits the anomaly in question; consequently to U. C. 969 A. D. 216: in which year of the city too, as our calendar shews, the Kalends of January fell on December 31 A. D. 215.

Now that an octaëteric cycle dated in this year, and constructed on the same principles as any such cycle in general, would be absolutely german to this of Hippolytus, dated in A. D. 224, may be shewn by actual comparison of one with the other; with this difference only that, as U. C. 969 in the actual administration of the Julian correction at Rome was a common year (though A. D. 216 was a leap-year) and U. C. 977 in the same administration was a leap-year, the Roman epoch of the cycle in the former instance would be the xi

Kalendas Martias March 22 Roman, and in the latter xii Kalendas Martias March 21 Roman: the former corresponding to March 20 Julian, the latter to March 21.

Octaëteris older than Hippolytus'.					*Octaëteris of Hippolytus.*				
U. C.	A. D.	Cyc.	Roman.	Julian.	U. C.	A. D.	Cyc.	Roman.	Julian.
969	*216	i	xi Kal. Apr.	Mar. 22	977	*224	iii	xii Kal. Apr.	Mar. 21
*970	217	ii*	v Id. Apr.	Apr. 9	978	225	iv*	v· Idus Apr.	Apr. 9
971	218	iii	iv Kal. Apr.	Mar. 29	979	226	v	iv Kal. Apr.	Mar. 29
972	219	iv	xv Kal. Apr.	Mar. 18	980	227	vi	xv Kal. Apr.	Mar. 18
*973	*220	v*	Nonæ Apr.	Apr. 5	981	*228	vii*	Nonæ Apr.	Apr. 5
974	221	vi	viii Kal Apr.	Mar. 25	982	229	viii	viii Kal. Apr.	Mar. 25
975	222	vii*	Idib. Apr.	Apr. 13	983	230	i*	Idib. Apr.	Apr. 13
976	223	viii	iv Non. Apr.	Apr. 2	984	231	ii	iv Non. Apr.	Apr. 2

Between these two schemes there is no perceptible difference at first sight but *these two*; that the one begins in the *third* year of the other, and that the epoch of the one is the xi Kalendas Apriles March 22 Roman, that of the other is the xii Kalendas Apriles March 21 Roman. In every other year of each, the dates or epochs of each, in the Roman style, are altogether the same as those in the other. The Julian dates of the former indeed are not the same as those in the latter; and in that respect the two schemes are essentially distinct: but that is a difference which lay beneath the surface, and at first sight, or externally, would not and could not appear. The *nominal* Roman date of every year in the older of these cycles, with the exception of that of the first, is absolutely the same as the *nominal* date in every year of the other.

And as to this distinction itself that the Roman epoch of the first year of the older cycle was March 22 Roman (xi Kal. Apriles) and that of the third of the latter was March 21 Roman, (xii Kal. Apriles,) it was entirely due to the fact that, in the actual administration of the Julian Correction at Rome, U. C. 969 the first year of the former was made a

common year instead of a leap-year; U. C. 977 the third year of the other, just 8 years later, was a leap-year: as the law of the Julian cycle at that time required it to be. But for that difference in the respective administration of these two years, the Roman epoch of the first year of the former cycle must have been absolutely the same as that of the third year of the later. In like manner, in the actual administration of the Correction at Rome, U. C. 970 the second year of the former cycle was leap-year extra ordinem, and had the Bissex in February; U. C. 978 the corresponding year of the other was a common year, as the law of the Julian cycle required it to be. The effect of this distinction too would be that though the Roman epochs of the two cycles, one U. C. 969 the other U. C. 977, must differ by a day; those of the next two years, U. C. 970 in the one U. C. 978 in the other, must agree; as the above scheme shews that they did. And having begun to agree in these two years of each respectively, they must continue to agree to the end, as the scheme also shews that they do; because the same years are common or leap-years in each, after the first two; and in both, for the remainder of each, the cycle of the leap-year, and of common years, is the proper Julian cycle of both.

With regard however to the Julian dates to which these different Roman dates in each of these cycles were corresponding at these different points of time respectively, it is impossible that they could be the same; and the above scheme shews that *de facto* they were not the same. But it shews also that the difference between the Julian dates of the one and those of the other amounted only to a day; that the first Roman term in the former, at that time, denoted March 20, and the first in the latter, at that time also, denoted March 21: and so all through each in the same proportion. The Julian dates of the first of these cycles of 8 years range in every year one day lower than those in the second. Now we have already observed[n] that, in the continued use of one and the same type of the Octaëteris, this is *de facto* the kind and degree of the correction required by the inherent defectiveness of the cycle itself; viz. that every one of its Julian dates must be raised one day at least, at

[n] Supra, 227.

the end of one such cycle, to keep them still true to the moon. It follows then from this distinction that, if the lunar 14ths were true to the moon in the second of these cycles, beginning with that of U. C. 977 A. D. 224, they must have been true to the moon in the former also, beginning with that of U. C. 969 A. D. 216. We have shewn from actual calculation[o] that such was the case with the first lunar 14th of the second cycle, March 21 A. D. 224. To put it to the test in that of the lunar 14th of the first year of the former cycle, we have calculated the new moon of March A. D. 216, for the meridian of Rome; and have found as follows:

			h.	m.	s.	
Mean new moon	March	6	4	21	13	mean time Greenwich
.. ..	March	6	5	11	2	mean time Rome
True new moon	March	6	0	28	32	mean time Greenwich
.. ..	March	6	1	18	21	mean time Rome.

The true lunar 14th of this moon would consequently bear date March 19 at 1 h. 18 m. 21 sec. from midnight; and the cyclical lunar 14th March 20, the same year, must have been nearly a day too late. But this calculation shews that if March 20 under such circumstances was too late to represent such a lunar term, *a fortiori* March 21 must have been so. It is very allowable too to suppose the lunar 14th in this instance to have been reckoned from the phasis, 24 hours after the change; in which case its Julian date March 20 would be strictly in accordance with the truth *.

* But the true explanation of this anomaly may be that this cycle itself, of the date of March 20 Julian A. D. 216, was not the first of its kind; but one 8 years earlier, A. D. 208. The Octaëteris requires a correction of *three* days in two cycles, or 16 years; and that might be administered either by giving two days at the end of the first, and one at the end of the second, or *vice versa*, by giving one day at the end of the first, and two at the end of the second. The proportion of the true lunar 14th A. D. 224, under its Julian date March 21, and the true lunar 14th A. D. 216 under its proper Julian date also March 19, one to the other, viz. *two days*, proves that the proper epoch of this latter cycle *de facto* was A. D. 208 not A. D. 216, and the proper Julian date of its first lunar 14th was March 18; which was truly the lunar 14th A. D. 208. Of this coincidence something more may be said by-and-by.

o Supra, 328.

If therefore the cycle of Hippolytus was truly derived from this older cycle, it is very conceivable that while transferring the dates of this cycle from the seventh year forwards to his own, when he came to the first of this, answering to the third of his own, he might assign it a double entry; one taken from its own cycle, the xi Kalendas Apriles March 22 Roman, and standing consequently in the regular order of the cycle: the other intended for his own, and adapted to a change which had since taken place, or was expected to take place, in the character of this year of the cycle; viz. that as representing U. C. 969 in the years of the city it had not been a leap-year in the regular course of the Julian cycle of leap-year, but as representing U. C. 977 it had been so, or would be so. This was the only alteration necessary to accommodate the dates of this older cycle, in their proper Roman style in every year, to those of the corresponding years and in the same style in that of Hippolytus; and it is the only one which appears to have been actually made.

It would thus seem that the inference which we drew from the nature and obvious construction of the preamble, premised to the Paschal canon of Hippolytus, was just; and that the cycle which follows was actually taken from an older one of the same kind: the seventh year of *that* being assumed as the first of *this*, but no change being made in the details of the cycle externally except this one which we have thus pointed out and explained, affecting the date of the third year in particular: a change required by the necessity of the case, yet rather indicated than introduced in the cycle itself where it comes in, and rather left to implication than formally and expressly pointed out.

Nor, if it should be objected that Hippolytus on this principle must have assumed the seventh year of this older cycle as the first of his own, would it be difficult to assign probable reasons why he might do so. First, because this year happened to be the first of a new reign; of an emperor too who if not a Christian himself was favourably disposed towards Christianity, and if ecclesiastical antiquity is to be believed had received a Christian education, and under the teaching of Origen himself. Secondly, because in this year the lunar epoch of the year, the Paschal 14th, coincided with

the Feria septima of the Hebdomadal cycle; the most convenient and the most desirable of all the forms of the Hebdomadal incidence of the lunar fourteenths in the cycle of 16 years and the period of 112 years. These two considerations appear to us competent to account for Hippolytus' purposely dating his cycle in this year, A. D. 222; and therefore in the seventh year of the preexisting one.

xi. *Substance of the above explanations; and inferences deducible from them.*

Enough has now been said, we trust, to explain the peculiarities of this cycle; and that in particular which has hitherto appeared the most inexplicable of all. There is more still to be remarked upon it, especially with respect to the Paschal rule which must have been assumed in it, and which is actually recognized and exemplified by it; in which point of view it suggests some interesting and important observations *.

* The inspection of this Paschal cycle of Hippolytus enables us to ascertain the Paschal rule of his time, or that which he himself adopted and recommended; and how far it was the same with, or different from, that of after-times.

i. With regard to his Paschal Terms, it appears from the sixth year of his cycle that he admitted of the lunar 14th as early as March 18; three days before the earliest date of the vernal equinox, which could have been assumed at this time, March 21, and four before that which appears to have been actually recognized as its date, March 22. His earliest Paschal Term then in the sense of the lunar 14th was March 18. His latest does not appear in the cycle; but, as analogous to this of March 18, it would probably be April 16.

ii. With regard to his Easter Terms, it appears from his Table that it was already received as the rule to keep Easter on no day of the week but the Feria prima, or Sunday. All his Easter dates are Ἡμέραι Κυριακαὶ, Dies Dominici, or Sundays. It is clear from it too that the rule in his time was not to keep Easter on the lunar 14th even when it fell on a Sunday; but instead of the lunar 14th, in that case, to assume the lunar 21st, which would fall on Sunday too. And in these two respects the Paschal rule of Hippolytus was entirely the same as the Alexandrine of after-times; and as that of the church at present.

But it appears further from the inspection of his scheme that Easter, according to his rule, could not be kept on the xvth Luna, not even when it fell on the Sunday; but that, instead of the xvth, it must be kept on the xxiid. This case occurs *thrice* in each of his cycles of eight years;

Nor after these explanations can our readers, we think, fail to perceive the truth and justice of the assertion which we ventured to make, preliminary to this discussion, concerning the

though in the second instance in the first cycle, (the ivth year A. D. 225,) the Lunar xvi appears by mistake for the Lunar xxii. The earliest Easter Term then, in the sense of lunar, recognized by Hippolytus, was the Luna xvi[a], and the latest the Luna xxii[a]: and in that respect his rule agreed with the Roman of after-times, as opposed to the Alexandrine.

The most remarkable of the circumstances of his Paschal rule undoubtedly is his allowing of the Paschal 14th as early as March 18; and, if that day fell on the feria *sexta*, his allowing of Easter two days later, March 20, the lunar 16th: if it fell on the feria *quinta*, his allowing of Easter on March 21 three days later; if it fell on the feria *quarta*, his allowing of Easter four days later, on March 22: all which Easter dates appear in his own Laterculus of such Terms (De Emendatione, vii. 722); and all may be considered to have anticipated on the vernal equinox, as commonly reckoned in these times, March 22: particularly the two first, March 20 and 21.

The most probable and most natural explanation of this peculiarity is that the first Christian rule of Easter, (as was always to be expected *a priori*,) *mutatis mutandis* was borrowed from the contemporary Jewish rule of the Passover. At this point of time (i. e. from A. D. 86 to A. D. 219) the Paschal Terms of the Jews were March 18 and April 16, and the Paschal Numeniæ, or limits of the Mensis Novorum, were March 5 and April 3. And these appear to have been precisely those which Hippolytus has adopted in this Table. The rule of the Jews allowed of the observance of the Passover two or three days before the day of the equinox; and Hippolytus' rule extended the same liberty to the Christian Easter. The Jewish Passover might be celebrated at this time on March 19 as well as on March 21 or March 22: and Hippolytus' Easter might be celebrated on March 20, if it fell on a Sunday; as well as on either of the other two days.

It is another observable peculiarity of this cycle that the first year, the fourth, and the seventh in each of its Octaëterides are embolimaic; and under such circumstances that the Locus Embolismi must have preceded the Paschal month, or Mensis Novorum, in each of those years alike: which can be explained by no supposition so naturally and probably as by that of his Paschal month, or Mensis Novorum, being in reality the third or fourth month in the decursus of a cycle, reckoned according to the Roman rule from January: but such that the intercalary month always came between January or December and March or April. This peculiarity explains the intercalary years of the schemes proposed and compared supra, p. 335, the 2nd, 5th, and 7th in the one, the 4th, 7th, and 1st in the other. If the ultimate epoch of Hippolytus' cycle really went back to A. D. 208, (as we conjectured, p. 337, note,) it might take its rise on January 5 that year, the true luna prima of that month.

kind of service which this cycle was calculated to render not only to our Roman Calendar in particular, but to our Fasti Temporis Catholici in general. And that they may still more clearly see what these uses are, and how important to our purpose in both respects; we will take the liberty of recapitulating them, and of stating them briefly and summarily all together.

i. It is to be inferred from the testimony of this cycle, (a contemporary monument,) that the relation of the Roman to the Julian year, from A. D. 216 to A. D. 224 at least, must have been precisely the same as it is represented in our Calendar to have been.

ii. It is to be collected from its testimony that in the actual administration of the Julian Correction at Rome U.C. 969, A. D. 216, was a common year, contrary to the proper law of the Julian cycle at that time, and U. C. 970 A. D. 217 was a leap-year, contrary to it also; but neither of them contrary to the rule of the cycle actually observed at Rome at this time.

iii. It is demonstratively proved by this cycle that the Kalends of January, U. C. 975, 976, and 977, were one day behind the first of January A. D. 222, 223, and 224 respectively; just as our own calendar shews them to have been.

iv. It is demonstratively proved by this cycle that the Hebdomadal cycle of our Fasti Temporis in the 110th and the 111th and the 112th year of the xxxivth Julian Type or Julian Period is agreeable to the matter of fact at the time; and therefore right: and these years of the Period being so verified in that respect every year in the Period from A. D. 113 to A. D. 224 or 225 is verified also in the same respect.

v. It is demonstratively proved by this cycle that U. C. 977, the 68th leap-year, in the regular course of the cycle of leap-year in the Julian Æra in the years of the city, was actually a leap-year, in the administration of the Julian Correction at Rome, in that year; as the proper rule of the Julian cycle of leap-year from the first, just at that point of time, would always have required it to be. If then the same year, the 112th year of the xxxivth Julian Type, A. D. 224 was common; the consequence of this distinction between one and the same year, in the actual administration of

the Julian Correction at the time, and in that of the Julian system of our Tables in the last year of our xxxivth Type, would be that, though the Kalends of January U. C. 977 would be one day behind the first of January A. D. 224, the Kalends of March U. C. 977 and the first of March A. D. 224 would be absolutely one and the same; and the first of every Roman month U. C. 977 and the first of every corresponding Julian month A. D. 224, to the end of each respectively, would also be the same.

If then the coincidence which thus began to hold good first on the Kalends of March U. C. 977 and the first of March A. D. 224 in the very last year of our xxxivth Julian Type, (or rather in the very first of our xxxvth as dated from March 1 A. D. 224,) was never afterwards disturbed, the inference from that fact is necessary and inevitable; viz. That A. D. 224, the first year of our xxxvth Julian Type, dated from March 1, in the first year of the Julian cycle of leap-year, and U. C. 977 the 269th Julian year, dated Ex Kalendis Martiis, in the first year of the same cycle also, is the epoch of the absolute, final, and permanent coincidence of the Julian Correction of the dictator Cæsar with the Julian Type of our Fasti; and of that of both with the Julian year of chronology carried back from the present day to the same point of time, but no further.

This year then, whether it be reckoned A. D. 224 dated from March 1, or A. D. 225 dated from January 1, is truly the epoch of this coincidence; as we have always affirmed that it was: and therefore, next to the year of the Mosaic creation and next to the year of the Nativity, it is the most remarkable and the most important which could possibly come under our notice. In this year the actual Julian year of Cæsar, brought down from the date of the Correction according to the actual course and method of its administration at Rome all along previously, passed into the positive or conventional year of our Fasti, brought down from the date of the Creation in the actual course of natural annual time represented by Julian perpetually; and by passing at this point of time into the positive or conventional Type of the xxxvth Period of our Fasti, and in the same state of relation to the mean natural year at that time as any other before, it

made that Type as real and as actual as itself, yet in the same state of relation to the natural year as any before. In this year, the Julian Correction of Cæsar and the Julian Type of our Fasti, becoming identical one with the other, both became identified with the Julian Type of chronology; which being pushed back from the present day to this year, according to its proper law, is found to coincide with each, Ex Kalendis Martiis A. D. 224, or Ex Kalendis Januariis A. D. 225. From this time forward, the Julian Correction of Cæsar, setting out in a state of entire and complete coincidence with the xxxvth Julian Type of our Fasti, has been transmitted to the present day in the form of that same Type, unaltered and unmodified in any the least degree; so that this year, the 269th or 270th year of the Julian Æra properly so called, either A. D. 224 Ex Kalendis Martiis or A. D. 225 Ex Kalendis Januariis, and not B. C. 46 or B. C. 45, is virtually the true epoch of the Correction, the true point of time from which we must trace the Julian year which is in use at present, and *as* it is in use at present, or was so at least up to the date of the Gregorian correction.

As this conclusion however ultimately rests on the assumption that the Julian Correction of Cæsar having once coincided, and at this time, with the xxxvth Julian Type of our Fasti and with the proper Julian Type of chronology, or Julian Type in the abstract, never afterwards ceased to coincide with both; perhaps we shall not be considered to have established our point unless we do something also to demonstrate the truth of this assumption. We will therefore, before we take our leave of this subject, continue our review of extant dates to the end of the third century; and that we think will be amply sufficient to decide the question: for if the agreement established in A. D. 225 between the Julian year of Cæsar at Rome, and the Julian year of chronology, was still continuing undisturbed to the end of the third century, no one is likely to suppose that it was ever disturbed afterwards*.

* We shall conclude our review of the course of the Hebdomadal cycle in the Julian Correction with a general comparison of the sum of mean noctidiurnal time in the Julian calendar of our Fasti, from the 96th year of Type xxxii B. C. 45, the first year of the Julian Æra, to the first year of Type xxxv A. D. 225, the 270th year of the same Æra, and in the actual

Julian Correction at Rome, from the Kalends of January U. C. 709 to the Kalends of January U. C. 798.

For this purpose we begin with proposing the following scheme.

Synopsis of the succession of the noctidiurnal cycle from Dec. 30 at midnight B. C. 46, *the Kalends of January* U. C. 709, *to Jan. 1 at midnight* A. D. 225, *the Kalends of January* U. C. 978.

Julian Type of the Fasti.	Sum of years.	B. C.	Midnight.	Fer.	D. L.	Midnight.	Fer.	U. C.	Kalendæ Januariæ.	Fer.
xxxii. 96.	17	46	Dec. 29	6	A	Dec. 30	7	709	Dec. 30	7
				6			7			7
xxxiii	140	29	Dec. 28	5	A	Dec. 29	6	726	Dec. 31	1
				4			5			7
		A. D.								
xxxiv	112	112	Dec. 27	3	B	Dec. 28	4	866	Jan. 2	2
				2			3			1
xxxv	140	224	Dec. 26	1	C	Dec. 27	2	978	Jan. 1	7
			= Dec. 25	7		= Dec. 26	1			

In the next place, we observe that in the first seventeen years of this scheme, (all that enter it for the remainder of the xxxiind Type of our Fasti,) according to the actual administration of the Julian Correction at Rome, from the Kalends of January U. C. 709 to the Kalends of January U. C. 726, there were *eleven* years of 365 days and *six* of 366; or (what comes to the same thing) the sum of mean noctidiurnal time in these 17 Roman years was $\overline{365 \times 17} + 6$: i. e. 6 211.

In the xxxiiird Type of our Fasti, and in the 140 Roman years contained in it, from the Kalends of January U. C. 726 to the Kalends of January U. C. 866, according to the actual administration of the calendar at Rome, there were 103 years of 365 days, and 37 of 366. That is, the sum of mean noctidiurnal time contained in these 140 Roman years was $\overline{365 \times 140} + 37$, or 51 137.

In the xxxivth Type of our Fasti, and in the 112 Roman years included in it, from the Kalends of January U. C. 866 to the Kalends of January U. C. 978, according to the actual administration of the calendar at Rome, there were 86 years of 365 days and 26 of 366. The sum of mean noctidiurnal time therefore in these 112 Roman years was $\overline{365 \times 112} + 26$ or 40 906.

If we collect these sums together, we have

Type xxxii Kal. Jan. U. C. 709 to Kal. Jan. U. C. 726	6 211 mean solar days.
Type xxxiii Kal. Jan. U. C. 726 to Kal. Jan. U. C. 866	51 137 —
Type xxxiv Kal. Jan. U. C. 866 to Kal. Jan. U. C. 978	40 906 —
Kal. Jan. U. C. 709 at midn. to Kal. Jan. U. C. 978 at midn. 269 Roman years	98 254 mean solar days.

In the administration of the Julian time of our Fasti, for the same interval, according to the preceding scheme we have,

Type xxxii	Dec. 30 B. C. 46	to Dec. 28 B.C. 29,	$\overline{365 \times 17} + 3 =$	6208
— xxxiii	— 29 — 29	to — 27 A.D. 112,	$\overline{365 \times 140} + 33 =$	51133
— xxxiv	— 28 A.D. 112	to — 26 — 224,	$\overline{365 \times 112} + 26 =$	40906
Dec. 30 at mid. B.C. 46		to Dec. 26 at mid. A. D. 224		
269 Julian years of the Fasti				98247

In the first of these intervals there were *five* leap-years; but we take the sum at *three*: because we reckon from Dec. 30 B. C. 46 to Dec. 28 B. C. 29.

In the second there were 35 leap-years; but we take them at 33: because we reckon from Dec. 29 B. C. 29 to Dec. 27 A. D. 112.

In the third there would be properly 28; but we assume them at 26: because we reckon from Dec. 28 A. D. 112 to Dec. 26 A. D. 224.

The sum total then of noctidiurnal time in these three Periods from Dec. 30 at midnight B. C. 46 to Dec. 26 at midnight is 98247. This is equal to 14035 cycles of seven days, and two days over. The epoch then of this whole noctidiurnal succession being assumed (as in the above scheme) Dec. 29 at midnight, the Feria sexta, B. C. 46, there being an epact on the whole at last of two days, but only two, the Feria of the epoch, at the ingress of the fourth Period, Dec. 26 at midnight A. D. 224, would be the Feria 6 + 2, or the Feria Prima; as it is shewn in the scheme to be.

The sum then of mean noctidiurnal time in these 269 Julian years of our Fasti is 98247; that in the 269 Roman years corresponding to them is 98254. That is, the latter is *seven* days more than the former. In explanation of which it is to be observed that the former is reckoned only to Dec. 26 A. D. 224; the latter to January 1 A. D. 225: yet each from the same epoch, December 30 B. C. 46. There ought therefore to be a difference between them of a certain number of days. But it will no doubt be objected that this difference ought to be *seven* days; but the difference *de facto* from Dec. 26 A. D. 224 to January 1 A. D. 225 is not more than *six* days.

This apparent inconsistency between our calculation and the matter of fact touches on the nicest and most curious question of all. It will be seen from the above explanations that we have omitted no leap-year, required by the law of the Julian cycle, in the first or in the second of the preceding Periods; but in the third Period it is absolutely necessary to omit one: viz. in the very last year of the Period, the last year of our xxxivth Julian Type. The leap-day actually required by the law of the Julian calendar, and at that period of the Julian Correction, was supplied by the administration of the calendar the same year, at Rome; for U. C. 977–978 had such a leap-day, though A. D. 224–225 in the last year of our xxxivth Type had not.

This leap-day however being omitted in the xxxivth Type, the noctidiurnal epoch, at the ingress of the fourth Period in the above scheme, will

SECTION V.—*On the regularity and equability of the Julian year from* A. D. 225 *to* A. D. 313.

i. Paschal Cycle of Hippolytus. The first argument of the regularity of the administration of the Julian calendar at Rome, from A. D. 225 forwards, may perhaps be derived from the Paschal Cycle of Hippolytus itself. For this cycle is carried down from A. D. 222 to A. D. 237. The Dominical letter of the last year is A; the Paschal 14th is March 25th: and March 25, according to the cycle, is the seventh feria, or Saturday. The cycle of leap-year from A. D. 222 to A. D. 237, from the first year of the cycle to the sixteenth, is regular, and the cycle of the Dominical letter is regular also.

require to be assumed December 25 the Feria septima, A. D. 224; not Dec. 26 the Feria prima: and from Dec. 25 the Feria septima A. D. 224 to Jan. 1, the Feria septima A. D. 225 and the Kalends of January U. C. 978, the number of days is exactly seven, the difference between 98 247 and 98 254.

It seems then that, though we must necessarily reckon one of these sums at last to Dec. 25 at midnight and not to Dec. 26 at midnight, yet we cannot assume the difference between it and the other at last either more or less than seven days. And the explanation of this we apprehend to be that this difference of one day more than six was really generated between the Kalends of January U. C. 977 and the Kalends of January U. C. 978; and that up to the Kalends of January U. C. 977, (when they still fell on December 31,) the difference between the sum of the mean noctidiurnal time of our Fasti and that of the mean noctidiurnal Roman time in question was six days only. If you subtract 366 days from 98 254, it brings you from the Kalends of January U. C. 978 to the Kalends of January U. C. 977; and if you subtract 365 days from 98 247 it brings you from December 25 A. D. 224 to December 25 A. D. 223. The Kalends of January U. C. 977 fell on December 31 A. D. 223: and the distance from Dec. 25 to December 31 is six days. Moreover the Kalends of January U. C. 978 having been the Feria septima, and the year before being leap-year; the Kalends of January U. C. 977 must have been the Feria quinta: and Dec. 25 A. D. 224 being the Feria septima, and the year before being a common year, December 25 A. D. 223 must have been the feria sexta. Consequently Dec. 31 A. D. 223 (that is, the Kalends of Jan. U. C. 977) must have been the feria 6 + 6 or Feria 5^a; and thus every thing is consistent. Our General Tables shew the Dominical Letter A. D. 223, D; and therefore Dec. 25 the Feria sexta, and Dec. 31 the Feria quinta.

For further explanations on these points we refer to our Fasti Catholici, i. 439–530: iv. 534–553.

If all this was historical, or matter of fact, it would be demonstrative proof of the regular administration of the Julian calendar at Rome for these sixteen years also. We do not indeed know for certain whether Hippolytus reckoned his first cycle of 16 years backwards from A. D. 237 to A. D. 222, or forwards from A. D. 222 to A. D. 237. The description of it by Eusebius[q], Ἐπὶ τὸ πρῶτον ἔτος αὐτοκράτορος Ἀλεξάνδρου τοὺς χρόνους περιγράψας, would seem to imply the former; and that inference would so far be confirmed by his Chronicon: which was certainly brought down as low as the thirteenth year of Alexander Severus, at least. But the words premised to the Πίναξ or Table of Paschal Terms, Ἔτους ᾱ βασιλείας Ἀλεξάνδρου αὐτοκράτορος ἐγένετο ἡ δῑ τοῦ Πάσχα Εἰδοῖς Ἀπρειλίαις σαββάτῳ, ... ἔσται τοῖς ἑξῆς ἔτεσιν καθὼς ὑποτέτακται ἐν τῷ πίνακι—appear distinctly to recognize only the Paschal 14th of the epoch, as matter of fact or history; and all the rest as future, and dependent on the rule and prescription of the cycle itself. If this preamble therefore made part of the cycle from the first, and was published by the author himself along with the rest of it; it must be inferred from it that the actual date of the compilation and publication of this cycle must have been A. D. 222, in the first year of Severus: only later than the Ides of April that year. It was compiled however in any case with a view to a regular application of its details; and in the expectation of a regular administration of the calendar meanwhile. And as there is proof that the calendar was still regular A.D. 238, in the very first year of Hippolytus' second cycle of sixteen years; that is so far an argument that it must have been regular all through the first cycle of 16 years.

ii. Testimony of Censorinus. U. C. 991 A. D. 238, in the consular year of Ulpius and Pontianus, we have the assurance of Censorinus (a contemporary)[r] that the first of the Equable Thoth, the same year, Nab. 986, was falling on the vii Kalendas Julias, June 25 Roman. Our own Fasti Temporis Catholici shew that Thoth 1 Nab. 986 was falling on June 25 Julian. If so there was no difference, U. C. 991 A. D. 238, between June 25 Roman and June 25 Julian.

[q] Supra, 318. [r] Supra, 204.

iii. Paschal Computus, ascribed to Cyprian. There is another Paschalium or Paschal Canon, still in existence; which belongs to the same class of such productions as Hippolytus', and is nearly as old as his. It is known by the name of the Computus Paschalis of Cyprian; and it is usually printed in the Appendix to the works of Cyprian[s]. And, though it was not the production of Cyprian himself, it was that of a contemporary of his; and in strictness of some one even older than Cyprian.

The epoch of this cycle is ultimately derivable from what the author of it terms the *Caput in Egypto;* that is, the date of the first Passover, celebrated in Egypt and before the Exodus. From this Passover he reckoned 1548 years to the Passover of the Nativity[t]; 1579 to the Passover of the Passion[u]; and 1794 to his own time, the fifth year of Gordian, the consular year of Arrianus and Papus[u], U. C. 996 A. D. 243, and to the Passover or Easter of that year. These numbers being tested in each instance by the period of the cycle, 112 years, are found to be genuine; besides being consistent with each other, and with the opinions and dates of this author in other respects.

This year, the fifth of Gordian, A. D. 243, was reckoned by him the *third* year of the *seventeenth* sedecennity (i. e. the 17th period of 112 years) from the Caput in Egypto; and consequently A. D. 241 must have been the first: so that the date of the 17th period of 112 years, that of the first year of the first of its cycles of 16 years, in the third year of which cycle he himself was writing this account, must have been A. D. 241, the third of Gordian.

It would not be difficult by means of the data which are still to be found in the text of this Computus to restore the cycle of this author, exactly as it must have proceeded from him; though the actual Pinax Paschalis, which accompanied the work, if not absolutely lost, exists only in a very corrupt and defective state. And this was actually done by Dr. Wallis, Professor of Astronomy at Oxford, at the request of Bishop Fell, and for the benefit of his edition of Cyprian.

[s] See Cypriani Opera, Fell. App. 63–71: cf. 65, 66. 71.
[t] Page 69.
[u] Page 70.

We shall extract it from that edition, as so restored, and subjoin it here; adding to it only the years of the Vulgar Æra, and the Dominical Letters in the order of the solar cycle.

Pinax Paschalis of the Computus ascribed to Cyprian.

A. D.			Roman.	Julian.	D. L.	Feriæ.						
241		Caput in Egypto	Prid. Id. Apr.	Apr. 12	C	2	1	7	6	5	4	3
242	i	Comm.	Kal. Apr.	1	B	6	5	4	3	2	1	7
243	ii	Comm.	xii Kal. Apr.	Mar. 21	A	3	2	1	7	6	5	4
*244	*iii	Biss. et Emb.	vi Id. Apr.	Apr. 8	GF	2	1	7	6	5	4	3
245	iv	Comm.	v Kal. Apr	Mar. 28	E	6	5	4	3	2	1	7
246	v	Comm.	xvi Kal. Apr.	17	D	3	2	1	7	6	5	4
247	*vi	Emb.	Non. Apr.	Apr. 5	C	2	1	7	6	5	4	3
*248	vii	Biss.	ix Kal. Apr.	Mar. 24	BA	6	5	4	3	2	1	7
249	*viii	Emb.	Prid. Id. Apr.	Apr. 12	G	5	4	3	2	1	7	6
250	ix	Comm.	Kal. Apr.	1	F	2	1	7	6	5	4	3
251	x	Comm.	xii Kal. Apr.	Mar. 21	E	6	5	4	3	2	1	7
*252	*xi	Biss. et Emb.	vi Id. Apr.	Apr. 8	DC	5	4	3	2	1	7	6
253	xii	Comm.	v Kal. Apr.	Mar. 28	B	2	1	7	6	5	4	3
254	xiii	Comm.	xvi Kal. Apr.	17	A	6	5	4	3	2	1	7
255	*xiv	Embol.	Non. Apr.	Apr. 5	G	5	4	3	2	1	7	6
*256	xv	Biss.	ix Kal. Apr.	Mar. 24	FE	2	1	7	6	5	4	3
257	*xvi	Emb.	Prid. Id. Apr.	Apr. 12	D	1	7	6	5	4	3	2
				Sedecennitas		i	ii	iii	iv	v	vi	vii

The leap-years in the above cycle are indicated by the letters Biss. (Bissex or Bissextum): and they are the regular years of that kind in the Julian calendar. The intercalary years of the lunar cycle are pointed out by the letters Emb.; the common ones by the letters Comm.: and in this cycle too, as well as in that of Hippolytus, the Locus Embolismi precedes the Paschal month in the same year. The lunar 14th of the third year, U. C. 996 A. D. 243, is marked for the xii Kalendas Apriles, March 21 Roman, on the feria tertia or Tuesday: and the author himself observes of this year[w]: Hos autem annos omnes ab Exodo, id est a primo Pinacis versu super Septem (corr. Septendecim) sedecenni-

[w] Page 70.

tates, illos usque numerando (he means the sum total of periods of 112 years from the Exodus to the fifth of Gordian, A. D. 243, 16 periods of 112 years, and two years complete of the 17th, 1794 years in all).....ad tertium versum primæ sedecennitatis pervenientes, inveniemus secundum Judæos Pascha (i. e. the lunar 14th) xii Kal. Apriles (March 21 Roman) *feria tertia;* secundum nos autem tertio versu primæ sedecennitatis vii Kal. Apriles (March 26 Roman) occurrit Dominicus. That is, the lunar 14th this year, the Jewish Passover, was Tuesday March 21; the Christian Easter was Sunday March 26, the lunar 19th. The year then was perfectly regular, the Dom. Let. being A. Nor can there be any doubt that A. D. 243 the lunar 14th might be rightly assumed as March 21, and the luna prima as March 8; though we have not thought it necessary to calculate it expressly. A. D. 224 we saw from calculation [x] that it truly bore date on March 21. A. D. 240 just sixteen years later therefore it would bear date March 24: and A. D. 243, three years after, March 21 *.

* The author of this cycle, in the explanations which he himself premises to it, assigns the principle on which it was constructed, in order to bring back the lunar and solar dates every eight years, and the lunar, the solar, and the hebdomadal every 112 years [1]: Et ideo xiv lunam eodem Pinace non per octo annos sed per annos sedecim ad diem suum primum redire ostendimus: et in eo bissexti annos (the Julian leap-years) secundum cursum solis sine errore ignorantium notavimus. qui (Pinax sc.) et ipse xvi annis suppletis licet ad certum diem suum immisso embolismo cum xiiii luna occurrit; tamen ad secundam feriam (that of the epoch) non occurrit, sed ad primam. sic æque secunda sedecennitas suppleta occurrit ad septimam feriam, &c.

The Paschal Terms, or earliest and latest lunar quartædecimæ, recognized by this author, are March 17 and April 15; the limits of his Mensis Novorum are March 4 and April 2; Qui dies primus novi mensis secundum cursum lunæ.... recognoscitur xvi Kal. Apriles [2] — Primo mense, qui est a xvi Kal. Apriles usque in xvii Kal. Maias [2]. Hippolytus' Paschal Terms were March 18 and April 16; the limits of his Mensis Novorum, or Paschal Numeniæ, were March 5 and April 3: one day later in each instance respectively. But we have already observed [3] that the earliest Christian rule in these respects was most probably borrowed from

1 Pag. 66. 2 Pag. 65. 3 Supra, page 340.

x Supra, 328.

iv. Acta of Pionius. It appears from these Acta[y] that in the year in which Pionius suffered the Natale Polycarpi,

the Jewish in the same; and it is a very singular coincidence that though March 18 and April 16 were still the Jewish Paschal Terms A. D. 216, when the older cycle from which Hippolytus' was ultimately derived appears to have been proposed, they began to be March 17 and April 15 A. D. 219: and those were their regular Julian dates when this Pinax of the contemporary of Cyprian was compiled.

This author, it is true, had a method of determining the limits of his Mensis primus, peculiar to himself[4], which would require them to be so fixed. But that is no objection. The fact of the rule is one thing, the reasons or the explanation of it are another. The former this author might find in existence before he adopted it in his own cycle; the latter he was at liberty to imagine for himself. He recognizes it also as a very general opinion in his time that the day on which the sun and the moon were created was the vernal equinox, and the day of that vernal equinox the viii Kal. Apriles, March 25 Roman; Qui nunc comprehenditur esse viii Kal. Apriles: a quo die computantes aliqui ex nobis, qui priores voluerunt hunc mensem novum ostendere.... dixerunt eundem mensem ab Id. Martii incipere et in diem Id. Aprilis consummari: et sic impegerunt[5]. That is, their earliest lunar 14th had been fixed to March 15 Roman and their latest to April 13 Roman; which implies that the limits of the Paschal Numeniæ, assumed in such schemes, must have been March 2 Roman, and March 31 Roman: from which we strongly suspect that these Roman dates were really equivalent to March 1 and March 30 Julian; and that these cycles also belonged to a time when the Roman Kalends were falling one day behind the Julian.

With regard to his Easter Terms; the Pinax or Laterculus of such Terms, in its present state, is too corrupt to allow us to speak with certainty about them. He certainly did not permit the celebration of Easter on any day but Sunday. Whether he allowed it on the luna xv[a], or like Hippolytus always excluded that Term, is not clear. As his earliest Paschal 14th was March 17, if that fell on the Feria quinta (as in the vith year of his vith sedecennity) he must either have allowed of Easter on the lunar 17th March 20, or have admitted of the lunar 24th; which Hippolytus could not have done. If it fell on the Feria quarta, (as in the vith year of the viith sedecennity,) he must either have allowed of Easter on the lunar 18th, March 21, or have admitted the lunar 25th. If it fell on the Feria sexta (as in the vith year of the vth sedecennity) he must either have allowed of Easter on the lunar 16th, March 19, or have assumed the lunar 23rd. Thus we see that Easter, on his principles, might fall on March 19, 20, and 21, as much as on Hippolytus'; all earlier than such a date of the vernal equinox even as March 22, much more than March 25. But it

4 See our Dissertations, Vol. iv. Part ii. p. 718 sqq. 5 Pag. 64.

y Ruinart. Acta Martyrum, P. 140. Acta Pionii, Cap. ii: xxiii.

which means the anniversary of his martyrdom, fell on the Sabbath, or Saturday.

The date of this martyrdom of Polycarp in the solar calen-

could not fall on March 18 (vith year of the ivth sedecennity, when March 17 fell on the Feria septima) unless he allowed of the lunar xvth.

It is another singular circumstance that whosoever this author was his chronology, in two remarkable dates, the date of the Exodus and the date of the Nativity, comes nearer to the truth than that of any ecclesiastical writer of antiquity who can be mentioned besides. For first, he reckons it 1794 years from the Exodus to the 5th of Gordian, A. D. 243; which gives the date of the Exodus B. C. 1552: only 8 years later than the truth, B. C. 1560. Secondly, he reckons it 1548 years from the Exodus to the Nativity; which gives the year of the Nativity B. C. 4; i.e. the true year itself. It is clear too that he dated the Nativity at the Passover; and according to his own cycle[6] on the v Kalendas Apriles, the Feria quarta, Wednesday March 28: the same day of the week on which he dated the creation of the sun and the moon at first.

He dated the Baptism 30 years after the Nativity, 1578 years from the Exodus[7]; the Passion, 1579 years after the Exodus[7], 31 years after the Nativity: and that supposes our Saviour to have been 30 complete at his Baptism, 31 complete at the Passion, and the length of his ministry to have been just one year[8]. These numbers are consistent. From the Passion to his own time, the consular year of Arrianus and Papus, he reckons it 215 years; 1794 from the Exodus: and 215 is the difference of 1794 and 1579 also. Now, as this consular year corresponded to A. D. 243, it gives the date of the Passion A. D. 28 (243—215) just 31 years after B. C. 4. The date of the Baptism was consequently A. D. 27. It is clear however from various statements of his own to that effect[9] that he dated the Baptism in the 15th of Tiberius, the Passion in the 16th: and if so, he must have reckoned the years of Tiberius from the Passover A. D. 13, two years before the usual date A. D. 15. But whether he took this date from history, or simply from Luke iii. 1, must be doubtful.

Hippolytus dated the Nativity B. C. 2, as we saw[10], at or about the Passover; and the Passion A. D. 29, only 30 years complete afterwards. He must therefore have supposed the Baptism A. D. 28, when our Saviour was 29 complete, and the Passion when he was 30 complete; and he must have construed Luke iii. 23, of the beginning of his 30th year: and he must have allowed one year for the transaction of his ministry between. It is probable too that he reckoned A. D. 28, the year of the Baptism, the xvth of Tiberius, also referred to in Luke iii. 1; in which case he also must have dated his reign either from the usual time A. D. 13, or from the spring A. D. 14.

6 Pag. 69: cf. 70.
7 Pag. 69: 70: 66.
8 Cf. our Dissertations, Vol. ii. 460. Vol. iii. 624.
9 See our Dissertations, Loc. cit.
10 Supra, 314.

dar of Smyrna was Xanthicus 2 February 23. When we were treating in our Dissertations of this further question of the date of the martyrdom of Pionius[z], the year of that event was left in uncertainty, if it was not even wrongly determined at that time to A. D. 248. We now perceive that it ought rather to be referred to A.D. 250, U.C. 1003, the first year of Decius; in which he was consul along with Gratus: as the Acta of Pionius themselves imply that he was. We are of opinion also on further consideration that the *fast* of which the Acta spoke, as kept by Pionius the day before his apprehension, is not necessarily to be understood of the extraordinary fast before Easter, every year; but may be referred to the ordinary fast of the Parasceue or Friday in every week.

Now A. D. 250 Dom. Let. F (if the administration of the Julian calendar went on regularly from A. D. 224 to A. D. 240) February 22, the day before the Natale of Polycarp, would be Friday; February 23 Xanthicus 2 the day of the Natale, and the day of the apprehension of Polycarp, would be Saturday.

v. Acta of Fructuosus, &c. It appears from the Acta of Fructuosus[a] that in the consular year of Æmilianus and Bassus, U. C. 1012 A. D. 259, the xvii Kalendas Februarias, January 16 Roman, on which these martyrs were apprehended, was a Sunday; and xii Kalendas Februarias, January 21 Roman, on which they suffered, was a Friday. Either of these Hebdomadal dates implies the other. A. D. 259 Dom. Let. B January 16 would be Sunday and January 21 would be Friday. The Julian and the Roman January then this year were the same.

vi. Inscription in Muratorius. An inscription is extant[c] which records the date of a death, authenticated by two criterions; the day of the week on which it happened, and the age of the moon at the time. It is the earliest of the kind which has yet been discovered[d]; and it is distinguished by this peculiarity, that the language and idiom of the inscrip-

[z] Vol. iv. Part ii. 627–631.

[a] Ruinart, Acta Martyrum, 219. cap. 1 : 2. Cf. Muratorius, Bimardi Dissertatio Prævia, cap. vi. p. 31.

[c] Muratorius, ccclxvi. 1.

[d] Cf. P. 27. Dissertatio Prævia Bimardi, cap. vi.

tion are Latin, but the characters in which it is written are Greek. In Latin it would stand as follows:

Consule Claudio
Ed . Paterno . Nonis
Novembribus . die . Veneris . Luna xxiv
Leuces . Filie . Severe . Caressime &c.

The consular year of Claudius (ii) and Paternus was U. C. 1022 A. D. 269. The Dom. Let. of that year being C November 5 was Friday. The Nones of November U. C. 1022 and November 5 A. D. 269 were the same day. The Lunar character also specified is true likewise. The true new moon of October A. D. 269 fell on October 13: and the 24th Luna of that moon was November 5 *.

* We have no where met with a civil lunar date which appears to have been more close to the true age of the moon at the time than this. We have calculated the new moon of October, A. D. 269, for the meridian of Rome; and have found

		h	m.	s.	
The mean new moon	October 12	23	58	51	mean time.
The true ..	October 13	2	25	28·5	.. ..

So that nothing could have been more strictly the case than that November 5 must have been the Luna xxiv^{a} of this moon, reckoned whether from the mean new moon, or from the true, October 13 at midnight.

We suspect therefore that it was really taken from that form of the civil Lunar calendar, which in its own nature, when duly rectified from time to time, is the best calculated of all to represent the true mean new moon perpetually; viz. the Hek-kaidekaëteric. To explain this; we may observe that as none of the lunar cycles, by which the Ecclesiastical calendar was afterwards regulated, neither Anatolius' of the date of A. D. 277, nor the Alexandrine of the date of A. D. 285, nor the Roman of the date of A. D. 298, was yet in being; it may well be demanded by what kind of lunar cycle was the observance of Easter, and of the other moveable feasts of the church, determined and regulated at this time, and for some time before and after?

We have seen reason to conclude that it must have been by the Octaëteric. Hippolytus' cycle, and that of the Auctor De Computo which we have just considered, were both the Octaëteris at bottom; and the Octaëteric is the only form of the lunar cycle recognized by Julius Africanus, (A. D. 236,) a contemporary of each of them [1], and by the Montanists, according to Sozomen [2], from A. D. 271 downwards. But it does not follow that

1 Reliquiæ Sacræ ii. 188 l. 12. 2 E. H. vii. 18. 733 C.

vii. Paschal Cycle of Anatolius. We hope to give an account of this cycle on a future occasion. On what day of

it was the Octaëteric cycle so applied without any regard in practice to those corrections which it was known to require; the application of which to it, either in the form of the Octaëteris or in that of the Hekkaidekaëteris, at the proper times and in the proper degree, was competent to render it one of the most exact measures of lunar time imaginable, instead of one of the most defective. These corrections, as we have often explained, amounted to three days in 16 years, or two cycles of the Octaëteris; and the most convenient mode of applying them was to raise the solar epoch of the cycle one day at the end of the first cycle, and two days at the end of the second: and so on alternately, as long as the cycle itself continued in use.

It would be altogether probable *a priori* that this corrected form of the Octaëteric cycle, so intended and so applied for the use of the church, would take its rise in the same quarter of the church in which the Metonic cycle, ultimately derived and applied for the same purpose, did so; viz. at Alexandria in Egypt: and therefore that even this Metonic cycle itself might only be a continuation of some older and preexisting Octaëteric cycle. The epoch of the Metonic cycle in question was March 23 A. D. 285: and that would be simply the corrected epoch at that time of a double Octaëteric cycle, or one Hekkaidekaëteric cycle, which bore date March 20 A. D. 269. And *this* cycle and so dated would explain the lunar date of November 5 that year at once. For if you begin to reckon from March 20 at midnight, and make the first month one of 30 days, the eighth month will fall on October 13 at midnight; and the 24th of that moon on November 5 at midnight.

If we go back another 16 years from March 20 A. D. 269, we get to March 17 A. D. 253; an epoch just as true to the moon at that time as March 20 A.D.269. If we go back another 16 years, we get from March 17 A.D. 253 to March 14 A.D. 237; the last year of the cycle of Hippolytus: further back than which with a series of such cycles as these from A. D. 285 we should not consider it necessary to go. And March 14 A. D. 237 would be true to the moon; Hippolytus' date March 12 was two days in defect.

Now it appears from Eusebius[3] that the celebrated Dionysius bishop of Alexandria came to that see in the third of Philip; i. e. some time between July A. D. 245 and July A. D. 246: and continued in it to the twelfth of Gallienus[4]; some time between August A. D. 264 and August A. D. 265. And this is confirmed by the length of the sitting of each of his successors in the see respectively; Maximus' 18 years, Theonas' 19, and Peter's 12: the *third* of this last being coincident with the year before the great persecution[5], A. D. 302, his last with the ninth of the persecution, A. D. 311,

[3] E. H. vi. 35. 232 D. [4] Ibid. vii. 28. 278 B.
[5] Ibid. 32. 289 C. D.

the week it actually bore date has not been handed down from testimony. It is known however that it was published

in which he suffered[6]. This gives his first year A. D. 300; and therefore the last of Theonas A. D. 300 also: from which we ascend to the last of Dionysius A. D. 264 in the 12th of Gallienus.

Eusebius refers to several Paschal epistles of Dionysius: one to Domitius and Didymus, two of his presbyters or his suffragan bishops[7]: Ἐν ᾗ, says he, καὶ κανόνα ἐκτίθεται ὀκταετηρίδος, ὅτι μὴ ἀλλότε ἢ μετὰ ἰσημερίαν ἐαρινὴν προσήκοι τὴν τοῦ πάσχα ἑορτὴν ἐπιτελεῖν παριστάμενος κ', τ. λ.: another to Hierax, one of the bishops of Egypt also; and several more, written when Easter was approaching (before Easter at least); the last in the ninth of Gallienus[8]: Ὁ δὲ ὁσιώτερος καὶ φιλοθεώτερος (Gallienus sc.) ὑπερβὰς τὴν ἑπταετηρίδα νῦν ἐνιαυτὸν ἕνατον διανύει, ἐν ᾧ ἡμεῖς ἑορτάσωμεν. The ninth of Gallienus would fall between August A. D. 261 and August A. D. 262: and the Easter referred to would be that of the latter*.

This is the first authentic allusion to the Alexandrine rule of not celebrating Easter until after the vernal equinox, which occurs in Ecclesiastical history. According to that rule, if the lunar 14th fell the day before the vernal equinox Easter must be deferred till the next month. It might fall *on* the vernal equinox; and Easter be kept on the first Sunday after it: but it could not fall earlier and Easter be kept on the first Sunday after.

The inspection of the Lunar Calendar of our Fasti for the whole period of the sitting of Dionysius, from A. D. 246 to A. D. 264, will shew that no question of that kind could occur in any years of this interval but two, A. D. 254 and A. D. 262. In the former, A. D. 254, Dom. Let. A, (if that was the second year of an Octaëteric cycle which bore date March 17 A. D. 253,) the lunar 14th would fall on Sunday March 19; in which case Hippolytus' rule would have allowed of Easter on Sunday March 26: but March 19 being three days before March 22, the commonly received

* The reading in the text of Eusebius in this instance is certainly Ὑπερβὰς τὴν ἑπταετηρίδα: and yet it is difficult to say what could have been meant by any such allusion to an heptaëteris, or period of seven years, as that. What was the epoch of this heptaëteris? It is clear it was not the first year of Gallienus; because it was now the *ninth* year of Gallienus, not the *eighth*. Had the reading been Ὑπερβὰς τὴν ὀκταετηρίδα, it would have had a very significant meaning. For, supposing A. D. 262 to be the second year of some current Octaëteric cycle, yet coincident with the ninth of Gallienus, that would imply that the first year of such a period must have coincided with his first, and both with A. D. 253. In this case Dionysius might well allude to the first period of this kind absolutely, and yet as the measure of the duration of the reign of Gallienus also; who had actually reigned through one such period, and had now got into the second.

6 E. H. vii. 32. 290 A: ix. 6. 351 B-C. 7 Ibid. 20. 266 A.
8 Ibid. 21. 266 C: 22. 268 A: 269 D: 23. 270 C. D.

in the second of Probus; and the second of Probus bore date U. C. 1030 A. D. 277, before the Kalends of March at least. It had a Preface or Introduction, explanatory of its principles and structure; of which Eusebius has quoted a part[e]: and from this it appears that in the year in question, U. C. 1030 A. D. 277, the 26th of the Alexandrine Phamenoth, the 22nd of the Syro-Macedonian Dystrus, and the 22nd of the Roman March, all met together on the fourth day of the sun in Aries, according to the assumptions of Anatolius*. The two former of those dates could agree to

date of the vernal equinox at this time, the Alexandrine rule would take the next lunar 14th, April 17, and keep Easter on Sunday April 23.

Again, A. D. 262 Dom. Let. E, in the second year of an octaëteris which bore date March 18 A. D. 261, the lunar 14th would fall on Thursday March 20, before the equinox also; and the Alexandrine rule would take the next lunar 14th, April 18, Friday; and keep Easter on Sunday April 20. Dionysius' second epistle above referred to must have been written before this Easter; yet there is nothing in it which would imply that there was any doubt concerning it. The rule then was already well understood; at least in the Alexandrine church. We may presume then that it was first distinctly explained in the other epistle, above referred to; the date of which would thus be determined to A. D. 254. And that would go far to confirm our conjecture that a modified type of the Octaëteris was actually introduced into the church at Alexandria, and by Dionysius, in A. D. 253; and was retained there, subject to the proper corrections, down to A. D. 285.

* These assumptions suppose the ingress into Aries March 19. It would be difficult to account for an assumption like that, without a knowledge of that combination of spheres, and of those principles and distinctions, of which we gave an account supra, p. 56 sqq. These principles and distinctions would be implicitly adopted by Anatolius, a native indeed of Laodicea in Syria, but brought up at Alexandria. The epoch then of the sphere of Mazzaroth in his time being supposed to have been March 23, and the date when the recession in antecedentia, in that sphere, attained to its maximum, and began to be succeeded by the contrary motion in consequentia, (for the reason assigned supra, page 61 note,) being supposed to have been B. C. 78; in 320 years, at the rate of one day in 80 years, this precession would be supposed to amount to *four* days complete. Hence, the epoch of the Krion of Mazzaroth B. C. 78 being March 23 − 8 or March 15; A. D. 277 it would be March 15 + 4, that is March 19. Or he must have assumed that the recession in antecedentia began from March 23 B. C. 78; and therefore that A. D. 243 it amounted

[e] E. H. vii. 32. 286 C. D.

nothing at that time but the 22nd of the Julian March. If so, the 22nd of the Roman March that year agreed with the 22nd of the Julian.

viii. Epoch of the Roman Supputation or Easter rule. We may have occasion to give a more complete account of this Roman rule and its epoch hereafter. It appears both from the Fasti Consulares Cuspiniani, and from the Paschal Laterculus of 84 years recovered by Muratorius, that the Roman Supputation in question traced back to its epoch took its rise on the Kalends of January U. C. 1051; when the day of the new moon, the seventh day of the week, and the first of January Roman, all met together.

These are very authentic criterions of January 1 A. D. 298; when, the Dom. Let. being B, January 1 was a Saturday: and the moon having been new for the meridian of Paris December 31 at 10 A. M. A. D. 297, the luna prima of that moon might be dated January 1 at midnight, A. D. 298. On this principle January 1 A. D. 298 and the Kalends of January U. C. 1051 were absolutely one and the same.

ix. Acta of the Martyrs of Palestine. Many dates are recorded by Eusebius in his account of the Martyrs who suffered in Palestine in the great persecution, from A. D. 303 to 313: too numerous indeed and too particular to be here produced and considered[g]. They are given first and properly in the style of the calendar of Cæsarea, or calendar of Palestine; but they are also given in that of the Roman: and one being compared with the other it appears that, *mutatis mutandis*, (i. e. in every thing but the names of the months, and possibly the absolute though not the relative order of the months in each,) they are the same; and the relation of the solar calendar of Palestine to the Roman, in the sense of the Julian, was one of identity. No exception to this identity in a particular instance is discoverable, except where there is reason to suspect some error of reading in the text of Eusebius itself at present.

to 4 days complete: so that A. D. 277 the Krion of Mazzaroth would be bearing date strictly March 23 – 4, or March 19. And this is probably the true explanation of his opinion.

[g] See however our Dissertations, Vol. iv. Part ii. 631–637.

The mode in which these different dates are compared together, each in its proper style, may be illustrated by the following examples: Δίου μηνὸς ἑπτακαιδεκάτῃ· αὕτη παρὰ Ῥωμαίοις ἡ πρὸ δεκαπέντε Καλανδῶν Δεκεμβρίων [h]— Δύστρου μηνὸς .....τετράδι καὶ εἰκάδι· ἡ πρὸ ἐννέα Καλανδῶν Ἀπριλλίων [i]— Ξανθικοῦ μηνὸς δευτέρα· ἥτις ἂν εἴη πρὸ τεσσάρων Νωνῶν Ἀπριλλίων [k]— Πρὸ δώδεκα Καλανδῶν Δεκεμβρίων· ἡ γένοιτ' ἂν μηνὸς Δίου εἰκάδι [l]— Δίου μηνὸς πέμπτη.....Νώνναις Νοεμβρίαις [m]— Μηνὸς Πανέμου πέμπτῃ καὶ εἰκάδι.....πρὸ ὀκτὼ Καλανδῶν Αὐγούστων [n]— Δίου μηνὸς τρισκαιδεκάτῃ· Εἰδοῖς Νοεμβρίαις [o]—Ἀπελλαίου τεσσαρεσκαιδεκάτῃ, πρὸ δεκαεννέα Καλανδῶν Ἰανουαρίων [p]— Αὐδυναίου.....μιᾷ καὶ δεκάτῃ.....πρὸ τριῶν Εἰδῶν Ἰανουαρίων [p]— Περιτίου μηνὸς.....ἑκκαιδεκάτῃ, Μαρτίου.....ἡ πρὸ δεκατεσσάρων Καλανδῶν [q]—Δύστρου πέμπτη.....πρὸ τριῶν Νωνῶν Μαρτίων [r]— Νώναις αὐταῖς Μαρτίαις, ἡ γένοιτ' ἂν ἑβδόμη Δύστρου [r]. So that the only exception which appears is that of Δεσίου μηνὸς ὀγδόῃ, πρὸ ἑπτὰ Εἰδῶν Ἰουνίων [s]; where Valesius consequently proposes to read Πρὸ ἓξ Εἰδῶν Ἰουνίων.

The relation of the solar calendar of Palestine then to the Roman at this time was one of equality, in all but the names and order of the months. It is certain that its relation to the Julian at the same point of time was one of equality too; for this solar calendar was nothing more than the Julian type of the old Macedo-Syrian lunar calendar. Its epoch was Dius 1 November 1; and every one of the months in it bore date on the first of the corresponding Julian month. If so the relation of the Roman calendar to the Julian for the whole of this period, A. D. 303 to 313, was one of equality also.

x. Paschal Laterculus of 100 years. There is extant also a Paschal Laterculus of 100 years, the sources of which and the construction have never yet been pointed out; but we hope some time or other to give an account of them ourselves. It was really derived from the Paschal cycle of Anatolius, re-

[h] E. H. viii. 1. 319 D.
[i] Ibid. 3. 322 A.
[k] Ibid. 4. 325 D. Cf. 7. 328 A.
[l] Ibid. 6. 326 C.
[m] Ibid. 7. 328 C.
[n] Ibid. 8. 332 C.
[o] Ibid. 9. 333 D.
[p] Ibid. 10. 333 B. C.
[q] Ibid. 11. 337 B.
[r] Ibid. 11. 341 C. D.
[s] Ibid. 1. 319 A.

ferred to supra. In the year in which it took its rise, A. D. 312, April 13 was Easter-day and Sunday. The Dom. Lett. that year being F E April 13 would be Sunday. It was also the lunar 19; and that too would be correct: March 26 the same year having been assumed as the luna prima.

xi. Date of the Concilium Romanum, A. D. 313. Lastly it appears from Optatus [t], that the council which assembled at Rome A. D. 313, on occasion of the schism of Donatus, met on the vi Nonas Octobres, a Friday. A. D. 313 the Dom. Let. was D, and October 2 was Friday.

We consider it superfluous to continue this investigation any further. Having arrived at this year, A. D. 313, we have got to a point of time from which we may safely take it for granted that the administration of the Julian calendar proceeded uniformly, and according to its proper law, down to the date of the Gregorian correction. But the proper epoch of its fixation in one and the same form was not this year; but A. D. 224 ex Kalendis Martiis or A. D. 225 ex Kalendis Januariis. It is not necessary however for us to repeat what we have so lately said on this subject. For our own part we do not hesitate to resolve each of these effects into the same Divine Providence; which both ordained that the actual course of annual natural time, brought down in the form of Julian from the first, and the actual Julian Correction of the dictator Cæsar should first meet in a state of entire and complete coincidence in this year, A. D. 224 or A. D. 225: and also that, having once met together and coincided in that state, and in that year, they should never after become distinct, but should always proceed together in the same state of identity one with the other.

[t] De Schismate Donatistarum, Lib. i. Capp. 22–27. Cf. the Reliquiæ Sacræ, iv. 65. l. 5—8.

CHAPTER II.

On the Nundinal Cycle of the Julian Correction, from A. D. 67 *to* A. D. 355.

SECTION I.—*On the Nundinal Character of* U. C. 820 A. D. 67.

The review of the course of the Hebdomadal cycle in the Julian Correction having been brought down to the time when the Julian year at Rome and its administration were no longer to be distinguished from the Julian year and its proper administration at present; we propose to institute a similar review of the course and succession of the Nundinal cycle in the same Correction, which was running parallel to the Hebdomadal all this time. But as we have already traced this cycle from B. C. 45 to the reign of Claudius, we shall not begin this proposed review of it from an earlier point of time than the reign of Nero; nor in fact than the thirteenth year of his reign U. C. 820 A. D. 67.

It may be shewn on a future opportunity that Nero was still in Greece at the beginning of A. D. 67; and at the time of the Isthmian games (the beginning of March) was at Corinth: and was recalled to Italy from thence by the arrival of his freedman Helius, (whom he had left in charge of the government at Rome when he went away himself on this visit to Greece,) just at the conclusion of the games in question [u].

There cannot be any doubt concerning the year of his return to Italy. The deprivation of both the Consules ordinarii and Nero's succeeding them [w], (which the Fasti date Ex Kal. Juliis U. C. 820,) the Sigillaria next in course after his return [x] (Dec. 20–23), the Kalends of January in the next consular year [y], U. C. 821 A. D. 68, the Votorum nuncupatio (Jan. 3) the same year [z], and lastly the revolt of Galba in

[u] Cf. Dio, lxiii. 19. [w] Suetonius, Nero, xliii. 3. [x] Ibid. xxviii. 5.
[y] Ibid. xlvi. 5: cf. l. 1. [z] Ibid. xlvi. 7.

Spain[a], at that time 72 years of age[b], are all mentioned after the visit to Greece, A. D. 66 U. C. 819, and after the return to Italy, U. C. 820 A. D. 67.

It appears from Suetonius that Naples was the first city in Italy which Nero visited on the occasion of his return; and the first which he entered in triumph, after the manner of the Eiselastæ of antiquity, in commemoration of his pretended victories at the games in Greece[c], and that Antium was the next, and Rome was the last: and that he entered each of these also in the same manner[d]; so that he was certainly first at Naples after this return: and at Naples he certainly made some stay.

Now Suetonius tells us that while he was at Naples the news of the revolt of Vindex in Gaul reached him there*;

* C. Julius Vindex: though Lampridius styles him Lucius Vindex[1]; which is probably a corruption of his text for Julius. Mr. Clinton in his Fasti Romani dates the rising of Vindex A. D. 68; and supposes a double visit of Nero's to Naples, one A. D. 67, the other A. D. 68: for which he appeals to Dio[2]. But Dio has no such double visit. According to him Nero heard of the revolt of Vindex at Naples[3] and of that of Galba at Rome[4], evidently in distinct years; one A. D. 67 the other A. D. 68. We hope to have a future opportunity of considering the chronology of Nero's visit to Greece, and all its circumstances. But with respect to this particular question of the true year of the revolt of Vindex, and when Nero first heard of it, we think the fact recorded by Suetonius[5], (that Nero deprived the two consuls of the year, in which he received the news, of their office, on purpose to succeed to both of them himself, Quasi fatale esset non posse Gallias debellari nisi a consule,) is abundantly competent to decide it. For this was done, as the Fasti Consulares shew, A. D. 67; Nero therefore heard of the revolt of Vindex in A. D. 67.

The truth indeed appears to be that the rising of Vindex actually took place A. D. 67; and yet was not suppressed by his death until the next year, A. D. 68[6]. And this explains the historical statement that he proclaimed Galba before his death; yet that the news of his death and

1 Alexander Severus, 1. Cf. Dio, lxiii. 22. Suet. Nero, xl. 1.
2 lxiii. 20. 26.
3 Cap. 26.
4 Cap. 27.
5 Nero, xliii. 3.
6 Cf. the Anecdota Græca Parisiensia, ii. 24. l. 4.

a Suetonius, xlii. 1. Cf. Dio, lxiii. 27.
b Suetonius, xl. 5: cf. Galba, iv. 1: xxiii. 1. Dio, lxiv. 6.
c Vita, xxv. 1. Pliny, Epp. x. 119, 120. Vitruvius, ix. Præfatio. Cf. Suetonius, Nero, xx. 3: 5. Tacitus, Ann. xv. 33 U. C. 817 A. D. 64.
d Cf. Dio, lxiii. 20, 21.

Neapoli de motu Galliarum cognovit[e]: and he further characterises the day on which this news arrived as the same on which Nero himself U. C. 812 A. D. 59 had put his own mother to death; Die ipso quo matrem occiderat. *This* day, it is agreed, was one of the *Quinquatrus*[f]; i. e. one of the five days from March 19 Roman inclusive to March 23 Roman inclusive[g]: and we may collect from Dio's account of the event in particular that it could not have been earlier than the *third* day[h], March 21 Roman. And that is confirmed by the age of the moon at the time. The plan contrived for the death of Agrippina was executed after supper; between supper at least and midnight: and Tacitus speaks of the same night as Sideribus inlustris[i] (starlight but not moonlight); Dio or Xiphilinus speaks of it as actually dark[k]: which understood of the absence of moonlight merely would not be inconsistent with Tacitus. The last new moon of our General Lunar Calendar, Period xiv. Cycle vi. 15, would bear date March 2 at

of that of Nero both reached Galba in Spain about the same time, A. D. 68[7].

On this question it is very necessary also to take into account what Pliny the younger observes of Verginius Rufus, who was commanding in Germany when this rising took place in Gaul, and who has in history the credit of having suppressed it: Triginta annis gloriæ suæ supervixit[8]: i. e. he died 30 years after this event. Now he died in the year of his third consulate, U. C. 850 A. D. 97; and while he was in office as consul ordinarius of the year himself: and he was succeeded by Tacitus; and Tacitus, while still in office as consul suffectus, pronounced his funeral oration: Laudatus est a consule Cornelio Tacito[8]. Now if we reckon back 29 years from A. D. 97 it brings us to A. D. 68. Verginius died sometime between the Kalends of January and the Kalends of July A. D. 97; Vindex must certainly have died sometime before June A. D. 68: and from the time of his death A. D. 68, to that of Verginius' A. D. 97, it might be 29 years complete, and part of a 30th; so that Pliny might well speak of it in round numbers as 30 years.

7 Dio, lxiii. 23. Suetonius, Galba, xi. 1, 2: ix. 6. Cf. Nero, xlii. 1: xlvi. 5. 7, 8. Plutarch, Galba, iv. vii. Suetonius, Galba, ix. 1.

8 Epp. ii. 1. Cf. vi. 10: ix. 19. Dio, lxiii. 24, 25: lxiv. 4: lxviii. 2.

e Vita, xl. 46. Cf. Dio, lxiii. 26. 22–25. 27.

f Vita, xxxiv. 6–9. Cf. Otho, iii. 1. Tacitus, Ann. xiv. 1. 4–12. Dio, lxi. 12–14.

g Ovid, Fasti, iii. 809–849. Maffæan, Prænestine, Farnesian, Vatican, Calendar. Festus, xv. 412. 8 Quinquatrus.

h lxi. 13.

i Ann. xiv. 5.

k lxi. 13.

midnight A. D. 59; and that is proved to be correct by the fact of the eclipse April 30 the same year, of which we gave an account supra[l]. This moon would be 20 days old complete at midnight March 22: and it would possibly not rise until near midnight March 22; and up to midnight, March 22, the night of March 21 would still be dark, so far as a starlight night could be so. From Tacitus' account of the manner in which the news both of the danger in which the life of Agrippina had been placed, and of her escape from it in the first instance, was received at Baiæ[m]; it must clearly be inferred that the Quinquatrus could not then have been over there. Her murder was completed the same night[n], and her funeral obsequies were hastily performed the same night[n]; and the next day or soon after, (probably at the end of the Quinquatrus,) Nero retired to Naples[o], before he returned to Rome.

The day then on which he heard of the revolt of Vindex must have been March 21 Roman, U. C. 820 A. D. 67. Suetonius adds[p]: Statimque in gymnasium progressus certantes athletas ..... spectavit: no doubt from an affectation of unconcern at such news, as too trifling and insignificant to be worthy of serious notice: and he tells us that he kept up this appearance of indifference about it for *eight* days: Denique per octo continuos dies non rescribere cuiquam non mandare quid aut præcipere conatus rem silentio oblitteravit[p]. This number of days is something remarkable; and as it is exactly the measure of one Nundinal cycle, we may found upon it a conjecture that the news was received on the first day of the Nundinal cycle, and that was probably the reason why, for the next eight days at least, Nero affected to take no notice of it. If so, March 21 Roman U. C. 820 must have been Nundinal. Now the character of this year was *eight*. Consequently that of March was *five*; and therefore the 21st of March Roman, the third day of the Quinquatrus, this year would be Nundinal.

The relation of the Roman to the Julian Kalends U. C.

[l] Page 169.
[m] Ann. xiv. 8.
[n] Ibid. 9, 10.
[o] Ibid. 10. Cf. the Octavia of Seneca Tragœdus, for allusions to the death of Agrippina, 125–127: 309–376: 598 sqq.: 954–957.
[p] Vita, xl. 7. 9.

820 A. D. 67 was one of equality: and March 21 Roman was March 21 Julian also. That games were going on at Naples at this time appears from the above account of Suetonius[p]. Naples had quinquennial games; but those would not be in course A. D. 67, though they probably were so A. D. 66. We should understand these games there in the present instance merely of such celebrities as might be usual every where on the third of the Quinquatrus.

SECTION II.—*On the Nundinal Character of* U. C. 822 A. D. 69; *and on the date of the sack of Cremona.*

The date of the battles at Cremona, U. C. 822 A. D. 69, in the civil war of Vitellius and Vespasian, (after the death of Nero, and after the death of Galba, and that of Otho also,) and consequently the date of the sack of Cremona itself, which happened the same day as the last of those battles, are determined in general by the lunar eclipse of October 18 the same year. This eclipse however is expressly mentioned only by Dio or Xiphilinus[q]. It is not noticed by Tacitus; though he too alludes to the fact of the rising of the moon on one of the evenings during which these battles were going on[r]. There is consequently some appearance of inconsistency between his account of these things and that of Dio; which we must begin with removing.

For this purpose we will assume that Dio's in particular is substantially correct. He relates then first of all[s] how the soldiers of Vitellius, at the instigation of their commander, (whom he styles Allienus and Tacitus simply Cæcina*,) were

* The first mention of him in Tacitus occurs Histor. i. 52; where the old reading was A. Cæcina, until Lipsius altered it conjecturally to Alienus Cæcina. But it is more probable that it was intended merely of the Prænomen Aulus; and that the name in full was Aulus Licinius Cæcina, as it appears in the Fasti. Licinius might get corrupted into Allienus in Dio: though Allienus was certainly a Nomen gentile among the Romans, (cf. Cicero, ad Fam. xii. 11, 12: Appian, B. C. iii. 78: iv. 59: Cæsar, De Bello Africano, 2. 34.) On the other hand, a Licinius Cæcina is mentioned (Histor. ii. 52.) among the senators at Mutina this year, A. D. 69, when Cæcina was commanding at Bedriacum.

p Vita, xl. 7. 9. q lxv. 11. r Histor. iii. 23. s lxv. 10.

induced to declare for Vespasian. And that is consistent with the testimony of the Fasti Consulares, in which A. Licinius Cæcina appears both as consul suffectus Ex Kal. Sept. U. C. 822 A. D. 69, and as Perduellionis damnatus and degraded Ex Prid. Kal. Nov. the same year: for that was done at Rome as soon as this act of his at Cremona came to be known there [s]. Yet he was still consul at the time of these battles of Cremona; and he is so styled by Dio both on the former occasion [t] and on the day of the last of these battles [u] (October 20) itself.

This first resolution however was followed by an almost immediate change of mind [w]; and the same night the moon was eclipsed [x]: which fixes the date of these proceedings (both those of this night and those of the day before) to October 18.

The next day, τῇ ὑστεραίᾳ [y] October 19, we have the beginning of the battles; which now took place and lasted all that day and all the next night [z]. The moon is again alluded to on this night [a]; and that must have been the same allusion which occurs in Tacitus [b]. At sunrise the next morning, (October 20,) when the third legion surnamed Gallica, lately arrived from the east, agreeably to the custom which they had learned to observe in Syria, saluted the rising sun [c]; this accidental coincidence decided the victory in favour of the partizans of Vespasian. The same day Cremona was sacked [d]; and the date of that event is thus determined to October 20.

Now Tacitus also ascribes the ultimate decision of the contest to the same coincidence [e]; and he too dates the destruction of Cremona the same day [f]: and so far he is consistent with Dio. But his only allusion to the moon comes in in the account of the battle by night which preceded this incident in the morning [g]. Consequently not on the night of

s Dio, lxv. 10.
t lxv. 10.
u lxv. 14. Cf. Tacitus, Hist. iii. 31: Ibid. i. 77: ii. 71: iii. 37.
w Dio, lxv. 10, 11. Cf. Tacitus, iii. 12–14. Josephus, De Bello, iv. xi. 2, 3.
x Dio, lxv. 11.
y Ibid. 11. Cf. Tac. Hist. iii. 15, 16.
z Dio, lxv. 11, 12.
a Ibid. 13.
b Hist. iii. 23: cf. 16. 19. 22.
c Dio, lxv. 14. Cf. Tac. iii. 24, 25.
d Dio, lxv. 15. Tac. iii. 26–34.
e Hist. iii. 24, 25.
f Ibid. 24–35.
g Ibid. 22, 23. 24.

the eclipse, October 18, but on the night after it, October 19. His account then, beginning with the arrival of Antonius Primus at Bedriacum[h], must begin on October 18; and if he had made mention of the eclipse it must have been on the night of that day: for he also mentions the day after that arrival (October 19) from the *fifth* hour until evening[i]; and at the *third* hour of the next night the renewal of the contest[k]: from which time down to the destruction of Cremona his account agrees with Dio's.

Now with reference to this event, (the date of which is thus critically determined to October 20,) he tells us that *one* temptation to stimulate the cupidity of the soldiers of Antonius Primus, and to lead to this act of violence, was a fair which was going on in Cremona at the time: Stato in eosdem dies mercatu[l]—Tempus quoque mercatus ditem alioquin coloniam majorum opum specie complebat[m]. Nothing would be more probable *a priori* than that the stated time of a fair would coincide with that of a Nundinal cycle; and that though the Nundinæ properly so called lasted only one day, yet a fair, as a greater and extraordinary occasion of the same kind, would take up the whole or the best part of an entire cycle.

Accordingly U.C. 822 A.D. 69 the Nundinal character of January being 5, that of October was 4; and therefore both the 12th and the 20th of October that year were Nundinal days. The destruction of Cremona then, October 20th this year, would coincide with a Nundinal day; nor would it make any difference to that coincidence whether this was the last day of a fair which had been going on some days, or the first of one which was just beginning. Tacitus' language in allusion to it, Stato per *eos dies* mercatu, implies that the fair in question had been going on all the time of the preceding events, from October 17 to 20 at least. Nor is it to be supposed that, if the people from the country had not been already assembled in Cremona when the two armies arrived before it, they would have ventured thither, even on such an occasion as that of this mart or fair, in the midst of so much confusion and so much danger.

[h] Hist. iii. 15.
[i] Ibid. 15, 16—21.
[k] Ibid. 22: cf. iii. 53.
[l] Ibid. 30.
[m] Ibid. 32. Cf. Dio, lxv. 15. Josephus, De Bello, iv. xi. 3.

Cremona was a Roman colony, and was founded along with Placentia U. C. 536 B. C. 218, in the first year of the second Punic war[n]; Placentia Pridie Kalendas Januarias that year[o]; and probably Cremona too. The colonies carried with them the language, the laws, and the customs of the mother city[p]; in short, not only the name but the privileges of citizens: and no doubt the calendar and the Nundinal cycle. We may take it for granted that the Nundinal cycle was introduced into Cremona U. C. 536 B. C. 218. It is a singular coincidence that the next year, U. C. 537 B. C. 217, the character of January was 6, and that of October was 4; just as it was A. D. 69. It is far from improbable that the stated date of this Fair or Mercatus there from the first was either October 12 or the nearest Nundinal day to that date.

This year too, A. D. 69 U. C. 822, the proportion of the Roman Kalends to the Julian was one of equality: and October 20 Roman and October 20 Julian were the same. Per quatriduum, says Tacitus[q], Cremona suffecit; i. e. from Oct. 20 to 23; and from 40 to 50000 persons appear to have been involved in its destruction[r].

SECTION III.—*On the Nundinal Character of* U. C. 872 A. D. 119.

The movements of Adrian, from the date of his adoption by Trajan, v Idus Augustas U. C. 870 A. D. 117, to U. C. 873 A. D. 120, were considered in our Fasti Catholici[s]; and it was shewn that he was at Rome on his birthday, U. C. 872, (January 24 Roman,) A. D. 119, and as late as May 1 afterwards, at least.

Now Spartian records of this year[t], Gladiatorum munus per sex dies continuos exhibuit et mille feras natali suo edidit: which we understand to mean that he exhibited these shows of gladiators and these wild beasts on six successive days;

n Tacitus, Ann. iii. 34. Livy, xxi. 25. Vell Pat. i. 14. Polybius, iii. 40. § 2–6: 66 § 9.

o Asconius, p. 120, 121.

p A. Gellius, xvi. 13. Festus, xi. 251. 7—252. 14 Municipes: Municipium: xiv. 303. 18 Præfecturæ. Servius, ad Æn. i. 12.

q Histor. iii. 33.

r Ibid. 33, 34. Dio, lxv. 15. Jos. Bell. iv. xi. 3.

s ii. 596, 597.

t Vita, 7: cf. 19. Dio, lxix. 7, 8.

the wild beasts on one of them, his birthday, and as it appears to us the first of all. The collection of so many wild beasts against his birthday is among the other arguments that the year could not have been earlier than A. D. 119. There could not have been time to collect so many against his birthday A. D. 118.

Now the Nundinal character of U. C. 872 was 6. Consequently January 22 Roman was Nundinal; and January 24, Adrian's birthday, was the Feria tertia of that cycle: and if the exhibition of gladiators took up this show of wild beasts on the next day, the Feria quarta, and lasted five days, both together would occupy the rest of that cycle, from the Feria tertia to the Feria octava inclusive. This was probably the reason why they were limited to this particular number of six days; viz. that beginning on Adrian's birthday January 24 Roman, the Feria tertia of the Nundinal cycle, they might end on January 29, the day before the next Nundinal day. At this time the Roman Kalends were one day higher than the Julian; and January 24 Roman = January 25 Julian.

SECTION IV.—*On the Nundinal Character of* U. C. 920 A. D. 167.

Julius Capitolinus in his Life of the Emperor Marcus Aurelius tells us that he revived the ancient ceremony of the Lectisternium: Celebravit et Romano ritu lectisternia per septem dies [u].

The context shews that there were two reasons at the time for his doing this; one, the breaking out of the Bellum Marcomannicum, the other, the pestilence, raging at the same juncture of time: and each of these motives would concur to determine it to U. C. 920 A. D. 167. For first, the Bellum Marcomannicum broke out in strictness before the close of the Parthian war; i. e. before A. D. 166, in which Verus returned from that war, and celebrated his triumph for his successes in it [w]: Dum Parthicum bellum geritur natum est Marcomannicum; quod diu eorum qui aderant arte suspensum est, ut finito jam orientali bello Marcomannicum agi posset [u]. And secondly, as to the pestilence, we hope to prove on a

[u] Cap. 13.

[w] Cf. our Dissertations on the Principles, &c. iv. 552 sqq.

future occasion that it first appeared in the empire A. D. 165 and was at its height at Rome in A. D. 167 [w].

The ceremony of the Lectisternium itself was one of those to which the Romans of old had been accustomed to have recourse in times of sickness or mortality, greater than usual. The first Lectisternium ever celebrated at Rome had been due to that cause, and that only [x]; and, as the emperor Marcus Aurelius with all his philosophy appears to have been of a singularly superstitious turn of mind, we have no doubt that, if he revived this ancient usage and at this time, it was under similar circumstances, and with the same object in view, as at first: viz. that of possibly allaying or mitigating the very formidable pestilence which was prevailing at the time.

The number of days too, to which he limited the ceremony on this occasion, was exactly the same as in the first instance of all, viz. seven [x]; and from that coincidence we may infer that it was purposely so limited, in order that it might agree so much the more closely to the ancient rule in another respect: viz. that of lasting from one Nundinal day to the next, yet without actually taking in either.

The date of the first Lectisternium was the Ides of November [x]. But since that time this day had become appropriated to the Jovis Epulum; a stated feast-day every year [y]: and that being the case, the first day open to such a ceremony as the Lectisternium, after the Ides, would be the 14th. Now U. C. 920 the Nundinal character of January was 5; and the year being common that of November also was 5: and therefore the Ides, Nov. 13, were Nundinal. This explains the seven days' Lectisternium. They began Nov. 14 Roman, the day after one Nundinal day, and ended Nov. 20 Roman, the day before the next.

Section V.—*On the Nundinal Character of* U. C. 936 A. D. 183. *Acta of the* Fratres Arvales.

There were many corporate bodies at Rome in former

[w] Cf. our Dissertations on the Principles, &c. iv. 552 sqq.

[x] Vol. ii. 113 sect. vii.

[y] Maffæan and Antiatine calendar: Constantian calendar: Historia Augusta, Alex. Severus, 37. Arnobius, vii. 238. Kalendarium Rusticum, Jovis Epulum, latter half of November. Cf. supra, 397, Irregular Calendar, Cycle vii. A. Ch. N. 56.

times*; companies, orders, brotherhoods of various kinds, just as there are in London, and in other great cities at present: associated too anciently much for the same kind of purposes as those which exist at present; the styles of which and in some instances even the date of their foundation are attested, and have been made known, both in other ways and by inscriptions still in existence.

Among these societies there was one which went by the name of the Fratres Arvales, the brotherhood of the clod, of the arvum, or ploughed ground; in English literally, of the *earth*: for both *arvum* in Latin and *earth* in English are derived from a verb denoting *to plough*; *arvum* from *aro* in Latin, *earth* from *to ear* in English. Nam omnis terra, observes Servius[z], ut etiam Varro docet quadrifariam dividitur: aut enim arvus est ager, id est sationalis, aut consitivus, id est aptus arboribus, aut pascuus, qui herbis tantum et animalibus vacat, aut floreus, in quo sunt horti apibus congruentes et floribus. And Varro himself[a]: Seges dicitur quod aratum satum est: arvum quod aratum, necdum satum est.

This brotherhood then was an agricultural corporation, which had purposely assumed a name declaratory of their relation to the soil and to the plough. Fratres Arvales dicti sunt qui sacra publica faciunt propterea ut fruges ferant arva: a ferendo et arveis Fratres Arvales dicti sunt[b]. They might boast of an antiquity greater than that of any thing else of the same kind at Rome, if it was true (as we are told

* According to Pliny[1] seven such colleges were founded by Numa; among which he reckons the collegium Fabrum[2] as the *third*, and the collegium Figulorum[3] as the *seventh*. These would appear to have been simply an order of mechanics or operatives in each instance. We might however mention the college of augurs founded by Romulus[4], and increased by Numa[5]; the pontifical college founded by Numa[6]; the Salii, ascribed both to Numa and to Tullus Hostilius[7]; the Sodales Titii, instituted by Romulus, or by Titus Tatius[8].

1 H. N. xxxv. 46. p. 550.
2 Ibid. xxxiv. 1. p. 194.
3 Ibid. xxxv. 46. p. 550.
4 Cf. Livy, i. 6–8. Dionysius, ii. 21–23.
5 Livy, i. 36: iv. 4: x. 6–9. Cf. Vol. i. 256.
6 Vol. i. 173, note.
7 Ibid. 174. Dionys. ii. 70.
8 Cf. Varro, De Lingua Lat. iv. 25. Tacitus, Ann. i. 54: Histor. ii. 95. Suetonius, Galba, viii. 1. Macrobius, Saturnalia, i. 16. 282.

z Præfatio ad Comm. in Georgica.
a De Re Rustica, i. 29. p. 190. Cf: Festus, i. 39. 7 Arvum.
b Varro, De Lingua Lat. iv. 25.

concerning them) that their order existed even before the Foundation, and that Romulus himself was one of these brethren: and one of the first. Arvorum sacerdotes Romulus in primis instituit, seque duodecimum fratrem appellavit inter illos ab Acca Laurentia nutrice sua genitos. spicea corona quæ vitta alba colligaretur in sacerdotio eis pro religiosissimo insigni data, quæ prima apud Romanos fuit corona. honosque is non nisi vita finitur: et exsules etiam captosque comitatur.....hos enim deos tunc maxime noverant: Seiamque a serendo Segestam a segetibus appellabant: quarum simulacra in circo videmus [c]. Aulus Gellius gives a more particular account of their institution, from the Memorabilia of Massurius Sabinus, (a learned antiquary and grammarian whom he and Macrobius often quote*,) in connection with the history of Acca Laurentia [d]. Ea mulier ex duodecim filiis maribus unum morte amisit: in illius locum Romulus Accæ Laurentiæ sese filium dedit; seque et ceteros ejus filios Fratres Arvales appellavit: ex eo tempore collegium mansit Fratrum Arvalium numero duodecim. cujus sacerdotii insigne est spiceæ coronæ et albæ infulæ [e]. We learn from Festus [f] that the Ambarvale sacrum belonged to their juris-

* Cf. Pliny, H. N. xvi. 86: vii. 4. p. 50: 44. Lib. xiv: xv: xviii: xxi: xxviii: the authors quoted.

c Pliny, H. N. xviii. 2. p. 5.

d vi. 7. Cf. Minucius Felix, xxv. 13.

e Fulgentius, Expositio Sermonum Antiquorum, (Mythologica, Tom. ii. 172:) Arvales Fratres: Acca Laurentia Romuli nutrix consueverat pro agris semel in anno sacrificare, xii filiis suis sacrificium præcedentibus: unde quum ex iis unus esset mortuus propter nutricis gratiam Romulus in vicem defuncti se succedere pollicetur. unde ritus processit cum xii jam deinceps sacrificare, eosque Arvales dici Fratres, sicut Rutilius Geminus in libris Pontificalibus memorat.

f i. 231 Ambarvale Sacrum. Cf. Pliny, H. N. xviii. 2. Macrobius, Saturnalia, iii. 5. 15. Lydus, De Mensibus, iv. 36. p. 71. l. 15–17: 49. p. 84. l. 13–17.

Quisquis adest faveat! fruges lustramus et agros
Ritus ut a prisco traditus exstat avo.

Tibullus, ii. 1. 1.

Cf. Virgil, Georgica, i. 339: 345: and Servius in loc. Also ad Eclog. iii. 77: v. 74, 75. The ceremony of the Arvorum lustratio is described by Cato, De Re Rustica, cxli. p. 101–103. Cf. Varro, De Re Rust. ii. 1. § 10. Columella, ii. xxii. § 5. As also that of the Porca Præcidanea, to Ceres, before harvest: cxxxiv. p. 93. 95. Cf. Virgil, Georgica, i. 345–350. The Amburbale sacrum too probably belonged to this order. Festus, i. 25. 5: Amburbiales hostiæ dicebantur, quæ circum terminos urbis Romæ ducebantur. Strabo, v. 3: Μεταξὺ γοῦν τοῦ πέμπτου καὶ τοῦ ἕκτου λίθου τῶν τὰ μίλια διαπεμαινόντων τῆς Ῥώμης καλεῖται τόπος Φῆστοι. τοῦτον δ' ὅριον ἀποφαίνουσι τῆς τότε Ῥωμαίων γῆς· οἱ δ' ἱερομνήμονες θυσίαν ἐπιτελοῦσιν ἐνταῦθά τε καὶ ἐν ἄλλοις τόποις πλείοσιν ὡς ὁρίοις αὐθημερὸν ἦν καλοῦσιν Ἀμβαρουίαν. Perhaps the last instance

diction; and that two of the brethren were deputed every year to perform it.

Now among the Acta Sollemnia of this fraternity one was the performance of a sacrifice to the Dea Dia, (for she is designated by no other title, unless even that is a corruption for the Dea Seia* alluded to in the preceding quotations,) and so far of a stated nature as to be always offered in the month of May; but not on the same day in that month: and therefore so far *conceptive*. A fragment of their Acta is extant[g], dated Imp. Cæs. M. Aur. Antonino Aug. IIII. C. Aufidio Victorino II Cos.: that is, U. C. 936 A. D. 183: and in this the following entry occurs.

Iisdem (sc. consulibus) vii Idus Januar. in Pronao ..., Q. Licinius Nepos Mag. velato capite contra orientem quod bonum faustum felix fortunatum salutareque sit Imp. Cæs. M. Aurelio (the name of Commodus followed, but it was subsequently erased from the stone) Antonino Aug. Pio ..... Cos. iiii ... senatui P. R. Q. Fratribusque Arvalibus, sacrificium Deæ Diæ hoc anno erit ante diem xvi Kal. Junias Romæ, ante diem xiiii K. Jun. in luco, et domi xiii K. Jun. consummabitur. The discharge of this vow is also recorded[h]: Iisdem Cos. xiiii K. Jun. in luco Deæ Diæ Q. Licinius Nepos ad aram immolavit[i], &c.

We see then that *this* year, U. C. 936 A. D. 183, three days were appointed for this ceremony; the xvi, xiv, and xiii Kalendas Junias, May 17, 19, and 20 Roman. Why then was the xv Kal. Jun. May 18 passed over? We conjecture because it was Nundinal; and because it was contrary to the oldest rule and prescription of such a society as

* The Dea Seia appears to have been intended of the personification of the principle contained in the seed as yet in the ground, and not grown up; the Dea Segesta or Segetia of that of the plant developed from the seed, and now above ground: cf. Augustin, De Civitate, iv. 8.

of this ceremony recorded in history is that of A. D. 271 in the reign of Aurelian: Histor. Aug. SS. Aurelianus, 18–20: when the Libri Sibyllini were consulted, the Amburbium celebrated, and the Amburvalia promissa. The date of these proceedings was the iii Id. Jan. that year; and it is very observable that it was the Feria secunda of the Nundinal cycle. The character of A. D. 271 was 2, and therefore Jan. 10 was Nundinal, but not Jan. 11.

[g] Muratorius, cccxl. 2: Gruter, cxx.

[h] Muratorius, cccxli.

[i] Cf. also Ibid. cccxlii. 1.

this, to perform an act of this kind on the Nundinal day. Now the character of the year was 2; and the year was common. Consequently that of May was 2; and therefore the 18th was Nundinal; but not the 17th nor the 19th.

There is another fragment of these Acta[k], which belongs to U. C. 831 A. D. 78, L. Ceionio Commodo D. Novio Prisco Coss. or as the Fasti of Almeloveen have it C. Cornelio Prisco. And here too we meet with the same kind of entry: Iisdem Cos. vi Id. Jan. . . . . sacrum indictum Deæ Diæ . . . in diem vi (K.) Jun. . . . domi iiii K. Jun. in luco et domi. In Fabretti after in luco et domi we have the iii K. Jun.: so that, in this instance also, three days must have been fixed for the ceremony on this occasion, the vi and the iv and the iii Kalendas Junias, May 27, 29, and 30 Roman; and the v Kal. Junias, May 28, must have been passed over on this occasion, as May 18 was on the other. Now the character of U. C. 831 A. D. 78 was 4; and the year being common that of May also was 4. The 28th of May therefore was Nundinal; but not the 27th nor the 29th.

These are two remarkable coincidences: and neither of them can reasonably be resolved into chance. But if not, they authenticate the Nundinal cycle of our calendar, for U. C. 831 and U. C. 936, beyond all question: and through that the calendar also.

SECTION VI.—*On the Nundinal Character of* U. C. 938 A. D. 185.

A very extraordinary phenomenon was witnessed at Rome this year. Besides the ordinary consuls of the year, who entered Ex Kal. Januariis, there were *twenty-three*[l] more between the Kalends of July and the end of the year; the first two of the number being C. Pescennius Niger ii and L. Septimius Severus[m] (afterwards rivals for the purple) or Severus and Apuleius Rufinus[m]. This was one of the extravagant acts of Commodus; or rather of his Præfectus Prætorii at the time, Cleander.

[k] Muratorius, dlxxxiii. 1: cf. cccxii. 1. Fabretti, vi. 49: 442–445. Cf. Gruter, cxvii–cxxii: Donius, ix. 28. 348, 349.

[l] Dio, lxxii. 12: Histor. Aug. SS. Commodus, 6: Fasti Consulares.

[m] Historiæ Aug. SS. Severus, 4: Niger, 4.

Now as the number of days from the Kalends of July inclusive to the end of December inclusive was exactly 184, and 184 is exactly equal to 23×8, it is manifest that each of these consuls must have had eight days in succession one after another; and that being just the measure of one Nundinal cycle, if the first of them entered on office upon the Nundinal day all the rest would do so too: so that, if the Kalends of July this year were Nundinal, Rome must have witnessed the extraordinary spectacle of 23 consular ingresses, one after another falling on the Nundinal day: which in our opinion would have been so repugnant to all the practice of former times, and to the prejudices of the Romans still, that on the strength of its improbability *a priori* only we might venture to say with confidence that the Kalends of July this year could not have been Nundinal. Nor in fact does it appear that they were. The character of January was 8; and the year being common that of July was 3. Consequently the first of July was not Nundinal.

It is to be observed that in the Historia Augusta of these times a particular word is found to be used for the term or duration of the office of consuls suffect: which word is Nundinium or Nundinum. Thus in Lampridius' life of Alexander Severus[n]: Consulatum ter iniit tantum ordinarium: ac primo *nundino* sibi alios semper suffecit. Again[o]: Consules quoscunque vel ordinarios vel suffectos creavit ex senatus sententia nominavit . . . et nundina vetera ex ordine instituit vel dies vel tempora*. Again, in Vopiscus' life of Tacitus, who reigned only six or seven months, A. D. 275 to 276[p]: In eadem oratione fratri suo Floriano consulatum petiit; et non impetravit: idcirco quod jam senatus omnia nundina suffectorum consulum clauserat.

The reading in all these instances is nundinio or nundinia,

* The latter part of this passage is corrupt. The reading in the Pal. Cod. is Et nundinia vetera serdine instituit vel dies vel tempora: from which we conjecture that Lampridius really wrote Et nundinia inter se sortiri ordine instituit vel dies vel tempora: which last words probably implied either a certain number of days (not less than *eight*) or a certain number of months, perhaps *two*.

[n] Cap. 28. [o] Cap. 43. [p] Cap. 9.

as well as nundino or nundina; and though the latter is more classical, yet Nundinius or Nondinius as a proper name occurs on marbles[r]. Whether however nundinum or nundinium, yet as used for the term of the consular office it must have been first applied in that sense metaphorically, and must have been taken from the Nundinal cycle. And since it does not begin to appear as so used before the reign of Alexander Severus, A. D. 222; it is far from improbable that it first came into vogue U. C. 938 A. D. 185, on the occasion which we have just adverted to, when 23 consuls were in office just 8 days one after another, i. e. just one Nundinum, or Nundinal cycle*.

SECTION VII.—*On the Nundinal Character of* U. C. 970 A. D. 217.

The emperor Antoninus Caracalla was assassinated through the procuration of Macrinus the captain of his guard on April 8 Roman this year[s]; and Macrinus assumed the purple on the *fourth* day after, April 11 Roman, the birthday of Severus, the father of Antoninus[t].

It is agreed that Diadumenus his son was associated with him the same day[u]; and that the name of Antoninus was conferred upon him on the same occasion and at the same time[w]: for which latter reason more particularly, as Lampridius tells us[x], there was a supplicatio for seven days: Atque dies septem supplicatio pro Antonini nomine celebrata est.

* Salmasius observes (Hist. Aug. Tac. 9) that it began to be the rule to have bimestral consulships (six pairs of consuls in a year) in the reign of the second Claudius, A. D. 269. But Dio (xliii. 46) shews that a two months' term of office was a very common thing in his own time. The Epistles of Pliny do the same: and the Fasti Consulares attest it in repeated instances before the reign of Claudius. Nundinum therefore, understood of the consular office, cannot necessarily denote two months. It would more properly denote a term of days, (one or more measures of the Nundinal cycle,) than a term of months.

[r] Fleetwood, p. 13. 3.
[s] Dio, lxxviii. 5. 6.
[t] Ibid. lxxvi. 17: lxxviii. 5. 11. 17. A. D. 217.
[u] Lampridius, Diadumenus, 1, 2: Spartian, Antoninus Caracallas, 8: Capitolinus, Macrinus, 2. 3. 5: Dio, lxxviii. 17. 19. 34. 37: lxxix. 1.
[w] Capitolinus, Macrinus, 3. 5, 6, 7: Lampridius, Diadumenus, 1, 2.
[x] Lampridius, Diadumenus, 3.

This number of days is remarkable. But it may be explained by the Nundinal cycle of the time. The character of U. C. 970 was 6; and the year being leap-year *extra ordinem* that of April was 3. Consequently the eleventh was Nundinal; and this supplicatio beginning April 12 would begin the day after a Nundinal day, and end April 18, the day before one. Or it may be explained by the Hebdomadal cycle of the time. For after the month of February this year the Roman Kalends would fall one day behind the Julian; and therefore April 1 Roman on March 31 Julian, and April 12 Roman on April 11 Julian. And the Dom. Let. being D April 11 was a Saturday. This supplicatio therefore would begin on the Saturday and end on the Friday of the Hebdomadal cycle; and that was probably the true reason why it was made a period of seven days.

SECTION VIII.—*On the Nundinal Character of* U. C. 1108 A. D. 355; *and on the Constantian Calendar.*

A Julian calendar is extant to which we have often had occasion to refer in former parts of the present work, though we could not conveniently give any particular account of it until now. It appears to have first become known to chronologers under the name of the Calendar of Herwart; because it originally formed part of the collection of antiquities belonging to John George Herwart of Hochenburg; a learned antiquary of the sixteenth century. Since then it seems to have got into the Imperial cabinet at Vienna; and it is sometimes referred to under the designation of the Kalendarium Vindobonense[y]. By what denomination it is to be known at present is matter of indifference; but, if it is no longer to be called by the name of its first possessor, none would seem to be so proper for it on every account as that which should intimate through the appellation itself the epoch to which it belongs, or the particular time for which it was originally compiled and intended. And as that was a certain year in the reign of Constantius, its title on this principle should be that of the Kalendarium Constantianum; by which we ourselves hitherto have uniformly designated it.

[y] As by Eckhel, De Doctrina Numm. Vett.

A fragment of this calendar was published in Bucherius' work De Doctrina Temporum[z]; but the whole of it is incorporated in the Uranologium of Petavius[a]: and as that work is easy of access we consider it unnecessary to transcribe the calendar in question for the sake of this present work, and of the observations which we propose to make upon it. It is sufficient to refer our readers to the Uranologium.

This calendar is on many accounts an extremely interesting and valuable monument of its kind. In the first place, it is the only perfect specimen of the Julian Correction, or Julian Calendar properly so called, (mutatis mutandis,) which has come down to posterity. It is not indeed the identical calendar of the dictator Cæsar; but it is regularly derived from that: and it retains every thing even in that which had survived the changes produced by time and circumstances in the lapse of four centuries. And we have only to compare it with the fragments still remaining of the original Correction[b] (none of them probably later than the reign of Claudius), to see how much, which made part of that, after so long an interval of time was still retained in this.

In the next place, for our particular purpose, and at this period of our inquiries, when we are engaged on the illustration and verification of the Nundinal cycle of the Julian Correction as low down in the history of that Correction as it may be practicable to trace it, nothing can be more serviceable and more important than this Constantian calendar. This calendar connects the same cycle of this kind which was first introduced into Italy B. C. 1340 with that which was still in use there, unchanged and unmodified in any the least degree, A. D. 355; i. e. after the lapse of 1694 years. It supplies therefore the coronis and colophon of all our proofs of this fact; and by contemporary testimony too. We are consequently as much interested in the preservation of this monument for the sake of the Nundinal cycle of our calendar, as in that of the Paschal cycle of Hippolytus for the sake of the Hebdomadal; and we are bound to resolve this too into the same good Providence: which, having always designed that the mystery of the ancient Nundinal cycle of

z Pag. 275. a Pag. 112–119. b Apud Foggini.

Italy and Rome in due time should come to light, was pleased to preserve us this monument also, in the midst of a thousand risks to which it was perpetually exposed; in order that it might in due time bear witness to the truth in that respect.

i. *On the component parts of the Constantian Calendar.*

Let us then proceed to the examination of this calendar. In the first place, it exhibits the Roman months in their usual order, and under their usual names, from January to December; and according to their usual division of Kalends, Nones, and Ides. Secondly, it marks the various feriæ (rites and observances) in use in its own time, whether still retained from the original Julian Correction, or of subsequent institution and introduction into the calendar *; each under its proper name, and on its proper day. And the greater part of these observances are of a religious character; but some are purely civil: as the birthdays of the emperors in particular; most of which are specified in this calendar, beginning with that of Augustus. And these birthdays in some instances are seen to be what would properly be understood by those terms; in others they are their natale imperii, or birthdays only in a political sense. Besides these, it notes also the proper days in each month for the meeting of the senate, in the words, Senatus legitimus, which stand opposite to such days in every month. Thirdly, it defines also the entrance of the sun into the different signs throughout the year; i. e. the beginning of the months of the celestial calendar in terms of those of the civil. And these are not always the same which may still be read in the fragments of the original Julian Correction; nor indeed, so long after the date of that Correction, was it to be expected that they should be. Fourthly, the religious or ominous character of certain days in each of the months is noticed and pointed out also under the name of Dies Ægyptiacus, opposite to such days in each

* As for example the Ludi Sarmatici, vii Kal. Dec.—Kal. Dec. In the Panegyrici Vett. Cap. v. 1. Eumenii Constantio Cæsari (Constantine's father) dictus: Adoratæ sint igitur mihi Sarmaticæ expeditiones quibus illa gens prope omnis exstincta est, et pæne cum solo nomine relicta quo serviat. These Ludi were probably instituted at this time.

instances; and of these we have already given a full account[c]. Lastly, the characters CMXXIV are repeatedly exhibited in it, without any explanation of their meaning, and according to no certain or regular order; only that they stand opposite to such days in each instance as are either declared in the calendar itself to be the dates of games of a certain kind, or may very well be supposed to have been so: from which coincidence it may be conjectured that the object of this entry in each instance was to define and specify the sum of money which was to be expended on such celebrities; and that, as this sum is the same in every instance, these celebrities must have been such as were prescribed by law, and the expenses of which were probably defrayed out of the imperial fiscus, or exchequer. On this principle the characters in question will be distinct; and each part of them will have a distinct meaning. The first two letters, CM, will denote Committendi (with the ellipsis of ludi) or Committuntur, or Commissura; the rest (XXIV) the sum of money allowed to be expended on them: viz. XXIV great sesterces, about an Attic talent of antiquity, or nearly £194 sterling of our own money *.

* Entries similar to this are found in the fragments of the Julian Calendar also; particularly in the Antiatine: as, opposite to Pridie Non. Julias, *Ludi Apollini* COMM. H. S. CCCXXC; that is, Ludi Apollinares Committendi or Committuntur Sestertiis 380: opposite to Pridie Nonas Septembres, COMM. DCCLX: opposite to Pridie Nonas Novembres, LUDI PLEB. COMM. H. S. DC (Ludi Plebeii Committendi Sestertiis DC.)

The Attic talent in Roman money = 6000 Denarii[1] = 24000 Sestertii numi[2] = 24 great Sesterces, or mille Sestertii numi = 8*l.* 1*s.* 5½*d.* of our money[3]: and therefore 24 × 8 = 193*l.* 15*s.*[3]

The regulation cost of each of these exhibitions would thus be 193*l.* at least; and as these notes of CMXXIV occur 64 times on the monument, they imply that 193 × 64, or 12 352*l.* at least, must thus have been annually expended at Rome only, out of the imperial fiscus or public exchequer. How much more must have been similarly lavished every year in the other great cities of the empire! or rather, in all parts of the empire, great and little alike!

A limited sum of money was prescribed for the celebration of the Ludi

1 Festus, xviii. 558. 5 Talentorum. 2 Cf. xvii. 503. 1 Sestertius. Also Pliny, H. N. xxxv. 40. 519. A. Gellius, i. 8. 3 Arbuthnot.

[c] Supra, Page 230 sqq.

ii. *On the Hebdomadal Cycle of the Constantian Calendar.*

These peculiarities of the calendar however, whether capable of being explained or not, would not concern its subserviency to our particular purpose at present. Let us proceed therefore to those which do.

Here then we must begin with observing that besides the calendar properly so called, such as we have already described it, there are three parallel rows of characters placed on the left of it, which accompany it from the first of January to the thirty-first of December; i. e. from the beginning to the end of the year. The most prominent of these is that which stands in the middle. It consists of the first seven letters of the Roman alphabet, A to G, so disposed that beginning with A opposite to the Kalends of January (Jan. 1), they go on

Romani in the first instance of all, B. C. 495[4]. A remarkable case of the kind is recorded by Plutarch in his Life of Fabius Maximus[5]; after the battle of Thrasimen B. C. 217. That the games and public exhibitions at Rome, in point of expense, were subjected to certain regulations from an early point of time downwards appears from various authorities[6].

It is observable that in this Constantian calendar, and in the month of December only, various entries occur, from iv Nonas (Dec. 2) to ix Kal. Jan. (Dec. 24,) which run in the terms of Initium Muneris: Munus Arca. (Munus Arcanum), Munus Kandida. (Munus Kandidatorum), Munus Consumat. (Munus Consummatum or Consummatur). We conjecture from this coincidence that these were times and occasions in that one month, (the last in the year, and just before that of the official ingresses of every kind in the next year), when the laws (in order to prevent ambitus or bribery on a much larger scale and in a different way) allowed the candidates for honours to distribute largesses of some kind or other, and to a certain extent, to the people. Tertullian seems to allude to them in the following passage of his treatise De Idololatria, 13, Opp. iv. 165: Sunt quidam dies munerum, quæ apud alios honoris titulum, apud alios mercedis débitum, expungunt. nunc ego inquis recipiam meum vel rependam alienum. Cf. Historiæ Aug. Gordiani Tres, 3.

We may observe too once for all that many inaccurate entries are discoverable in this calendar in its present state; which must be laid to the charge of the copyist or engraver. But they are easily corrected; and do not detract from its exactness and authenticity in other respects.

4 Dionysius, vii. 71: cf. vi. 10. 2. 17.
5 Cap. iv.
6 Suetonius, Tib. xxxiv. 1. Tac. Hist. iv. 40. Historia Aug. Antonin. Phil. 11. Alexander Severus, 43. Cf. Servius, Ad Georg. iii. 18.

to G opposite to vii Idus Januarias (Jan. 7), and then begin again. And this cycle of these seven letters proceeds in the same manner without interruption to the end of the calendar; so that the first letter A, which at first stood opposite to the Kalends of January (Jan. 1), stands at last opposite to Pridie Kalendas Januarias (December 31).

Now these seven letters, A to G, are just the measure of one Hebdomadal cycle. It is therefore an obvious explanation of this middle row of characters that it was intended to represent the Hebdomadal cycle; and that each of these letters was the symbol of one of the *feriæ* of that cycle: A of the first, G of the last, the rest of those between. From which it will follow that when this calendar was published the letter A in this cycle of Hebdomadal feriæ so represented belonged to the Kalends of January; in other words the Kalends of January, the first day of the year, were a Sunday.

iii. *On the Nundinal Cycle of the Constantian Calendar.*

But again on the right of this middle row of characters there is another series of the letters of the alphabet also, only of smaller dimensions; which begins with A and goes on to H perpetually. *This* therefore consists of the first *eight* letters of the alphabet, as the former did of the first *seven*. Now *eight* was the measure of the Nundinal cycle, just as *seven* is that of the Hebdomadal. It is consequently as obvious that these eight smaller letters must have been intended to represent the Nundinal cycle as that the seven larger ones were intended to represent the Hebdomadal. The reader will no doubt remember that the Nundinal cycle was so represented in the Julian Correction from the very first[d]; and that the letter A, in the sense of the first feria of the Nundinal cycle, stood opposite to the Kalends of January in the first Julian year itself: and truly so at that time. The inference from this fact is just as obvious and just as necessary as that which we drew from the former; viz. that when this calendar was consigned to the marble in its present state the letter A, in the Nundinal cycle denoted by eight such symbols as these, belonged to the Kalends of January, and the Kalends of January were Nundinal. And from both

[d] Vol. ii. 8 sqq.

facts together we draw the conclusion that, when this calendar was made public in its present form, the Kalends of January united two characters; both that of the feria prima in the Hebdomadal cycle and that of the feria prima in the Nundinal. The first day of the year for the time being at Rome was both a Sunday and Nundinal at once.

iv. *On the Lunar Cycle of the Constantian Calendar.*

Thirdly, on the left of the row of characters in the middle there is another series of the letters of the alphabet likewise, of a size between that of each of the other two respectively; greater than the last described, but smaller than the first. This series consists of the first *ten* letters of the alphabet, A to K. It begins with A and goes down to K; and then it begins again.

In this particular series however the letters do not stand directly one under another, as they do in each of the preceding instances; but with an interval or space of three days between them, one after another: so that while A, the first letter in this cycle also, stands opposite to the Kalends of January (Jan. 1), B the next stands opposite to Pridie Non. Jan. (Jan. 4), and so on; which brings out K, the tenth or last in this cycle, opposite to v Kal. Febr. (Jan. 28), and A, the first in the second cycle of this kind, over against Prid. Kal. Febr. (Jan. 31).

It appears therefore that though this series of characters consists of *ten* letters only it is not exhausted in less than *thirty* days; the cycle of these ten characters in particular was a cycle of thirty days: and as the first stands opposite to January 1, and the last opposite to January 31, and each of the rest between the first and the last opposite to every third day between January 1 and January 31 in order, it follows that, if these ten characters collectively denoted a cycle of 30 terms, each of them must have denoted a particular term in that cycle, three numbers higher, or three numbers lower, than that which precedes or follows it respectively; A the first such term, B the fourth, C the seventh, and so on; E the thirteenth, F the sixteenth, K the twenty-eighth.

Now 30 days or terms are the measure of a *mensis plenus*; so that the intention and the use of this third row of charac-

ters obviously might be to mark the lunar reckoning of the calendar along with the solar, beginning only with a *mensis plenus*, or full month of its proper kind. On this principle, the second cycle of characters of the same kind should be intended of the *mensis cavus*, or lunar month of 29 days; which in the cyclical or calendar reckoning of lunar time perpetually must always come next to the *mensis plenus*: especially at the beginning of the lunar and solar year itself.

To ascertain whether this is really the case in the present instance, we must trace these characters through the second cycle. Now the first of this second series, A, stands opposite to Prid. Kal. Feb. (Jan. 31); the second, B, opposite to the iii Non. Feb. (Feb. 3); the third, C, opposite to viii Id. Feb. (Feb. 6): and so on, agreeably to the rule which was observed in the first cycle, until we come to the fifth letter, E, which stands opposite to Pridie Idus Feb. (Feb. 12), according to the analogy of all before it. But after E we find the letter F standing opposite not to the xv Kal. Martias (February 15) but to the xvi Kal. Martias (February 14); i. e. two numbers only higher than E, instead of three, and opposite to the fifteenth day or term in the second cycle, instead of the sixteenth, to which the same letter stood opposite in the first cycle.

If however we pass to the next character, G, we find that just three terms higher than F, or three days later than F; and if to the next to G, H, we find that too just three days after G: every thing in short again proceeding after the letter F in this second cycle just as it did after the same letter in the first, down to K; which stands opposite to iv Kal. Martias, February 26: after which the third cycle begins with A again, opposite to the Kalends of March, or March 1.

It is clear then that the exception to the rule in the sixth letter of this second cycle, the letter F, between E and G, could have been nothing accidental; and that it must have been purposely made in order to the effect which is seen to have resulted from it: viz. that thereby this second cycle of characters might be exhausted in 29 days, instead of 30. For the interval from Jan. 31 the first day of this second cycle to Feb. 28 the last is just 29 days: and as the first

cycle began Jan. 1 and ended Jan. 30, and this second began Jan. 31 and ended Feb. 28; it is evident that both together comprehended 59 days exactly. And 59 days being the exact measure of the lunar Δίμηνον cyclically reckoned; it is clear beyond any further question that the use and intent of these two first cycles of the same ten characters, disposed as they are in this calendar, must have been to represent such a civil or calendar Δίμηνον: a *mensis plenus* and a *mensis cavus*, cyclically reckoned, in sequence. The meaning of these symbols must have been so fixed and assumed at first that A, the first in every cycle, must have been intended of the luna prima, and K, the last of the luna 28[a]; and the rest in proportion respectively. Consequently the sixth of the series, the letter F, was the conventional symbol of the lunar 16th, and in the *mensis plenus* of nothing but the lunar 16th; but in the *mensis cavus*, in which it was necessary to suppress a day, though nominally still the symbol of the lunar 16th in reality it was so of the lunar 15th: understood in this particular case to be assumed for the lunar 16th. While then every other letter in this cycle remained the same, and denoted the same lunar term, both nominally and really, in each description of month; the sixth letter was a variable one: and, though it might nominally always be the same, in reality it represented a different lunar term in the *mensis plenus* and in the *mensis cavus* respectively; the sixteenth in the former, the fifteenth in the latter. And thus it happens that though the number of letters in every cycle of this kind is the same, and neither more nor less than ten; yet, as a cycle of lunar symbols and lunar terms, in one of these cases it is exhausted only in 30 days, in the other in 29: and that 59 lunar terms, or two lunar months in sequence, a *mensis plenus* and a *mensis cavus* according to the calendar, are represented by both in conjunction.

If we follow these characters round the calendar we see this hold good throughout it. Two of these cycles in sequence are exhausted regularly in 59 days; and the term omitted for that purpose comes in the second cycle, between the fifth character E and the sixth F, and after the fourteenth day of the cycle. That is, it is always the *fifteenth* of the lunar month, the civil πανσέληνον, which is thus sup-

pressed; in order that the symbol of the sixteenth term of that kind in the *mensis plenus*, F, may still retain its nominal meaning and value even in the *mensis cavus*. No exception to the uniformity of this rule is discoverable, but one; which is evidently accidental of its kind. In the *seventh* cycle of these characters, (which on this principle should represent the seventh civil lunation of the year, a *mensis plenus*,) the series begins as usual with A, standing in this instance opposite to v Kal. Julias, June 27; but between C and D, the lunar seventh and lunar tenth of this month, a number is missing: or what comes to the same thing the letter D stands out of its place; viz. opposite to iii Non. Julias, July 5, instead of opposite to Prid. Nonas, July 6. And this disturbs the succession of characters, and their proper relation to the lunar terms which they ought to represent, for the remainder of this seventh cycle, and also for the next. But even in this case the exemtile term is still found in its proper place, in the eighth cycle, between E and F, and after the lunar fourteenth of that month. And with the ninth cycle of characters, or ninth lunation, beginning with A opposite to viii Kal. Sept. August 25, every thing returns to the proper order; and so continues to proceed regularly to the end of the year.

No further proof then can be necessary to convince the reader that a lunar calendar must have been incorporated with the solar one represented on this monument; and a lunar calendar which bore date with the luna prima on the Kalends of January. And this calendar may be recovered from it solely by means of the letter A, (the first in the cycle of ten such letters taken from the alphabet,) which on this principle stands opposite to the first day of every one of its months; both those of 30 days and those of 29 days alike.

Lunar Calendar of the Constantian Calendar.

Luna Prima.		Days.	Roman.	Julian.
Month i	A	30	Kal. Jan.	January 1
.. ii	A	29	Prid. Kal. Febr.	.. 31
.. iii	A	30	Kal. Mart.	March 1
.. iv	A	29	Prid. Kal. Apr.	.. 31
.. v	A	30	iii Kal. Maias	April 29
.. vi	A	29	iv Kal. Jun.	May 29
.. vii	A	30	v Kal. Jul.	June 27
.. viii	A	29	vii (vi) Kal. Aug.	July 27
.. ix	A	30	viii Kal. Sept.	August 25
.. x	A	29	viii Kal. Oct.	September 24
.. xi	A	30	x Kal. Nov.	October 23
.. xii	A	29	x Kal. Dec.	November 22
Month i	A	30	xii Kal. Jan.	December 21

The letter A in the thirteenth cycle of the characters thus falls on the xii Kal. Jan. Dec. 21, the 355th day of the year; and the epact or age of the moon on the first of January, the first day of the next year, is just what it ought to be at the end of a lunar year of 354 days and a solar or Julian one of 365 days: viz. 11.

v. *On the date of the Constantian Calendar.*

To the other two criterions then of the date of this calendar we might add a third, as certain as either of them; viz. that when it was compiled and published the first of January must have coincided with the first day of the lunar month. On the whole therefore we should have three arguments of this kind, whereby to decide this question; any two of which would be sufficient for the purpose, and all three can leave no possible doubt concerning the year to which they may apply: i. The Hebdomadal Incidence, or the Kalends of January a Sunday; ii. The Nundinal Incidence, or the Kalends of January Nundinal; iii. The Lunar Incidence, or the Kalends of January the Luna prima. In whatsoever year then,

within such and such limits otherwise prescribed, these three characters can be shewn to have met on the first of January; that year must have been the actual date of this calendar: the year at least *for* which and *against* which it must have been compiled.

But with regard to this year, and to the limits within which we are to search for it, Petavius seems to have been of opinion that this calendar of Herwart's was drawn up and made public in the year of the Council of Nice, A. D. 325. He proposes it at least in his Uranologium[e] with the following title: Calendarium Romanum Constantini Magni Temporibus, ipso Anno Christi cccxxv, quo Synodus prima Nicæna celebrata, confectum. But as we have already observed the Natales of most of the emperors from Augustus forwards occur in this calendar*; and among the rest that

* *Natales of the Emperors, from the Constantian Calendar.*
Uranologium, 112—119.

		Roman.	Julian.
i	Augustus[a]	ix Kal. Oct.	Sept. 23
ii	Vespasian[b]	xv Kal. Dec.	Nov. 17
iii	Titus[c]	iii Kal. Jan.	Dec. 30
iv	Nerva[d]	vi Idus Nov.	Nov. 8
v	Trajan[e]	xiv Kal. Oct.	Sept. 18
vi	Hadrian[f]	ix Kal. Febr.	Jan. 24
vii	Antoninus Pius[g]	xiii Kal. Oct.	Sept. 19
viii	M. Antoninus[h]	vi Kal. Mai.	Apr. 26
ix	Verus[i]	xviii Kal. Jan.	Dec. 15
x	Pertinax[k]	Kal. Aug.	Aug. 1
xi	Severus[l]	iii Id. April.	Apr. 11
xii	Gordian	xiii Kal. Febr.	Jan. 20
xiii	Claudius	vi Id. Mai.	May 10
xiv	Aurelian	v Id. Sept.	Sept. 9
xv	Probus	xiv Kal. Sept.	Aug. 19
xvi	Constantius (Chlorus)	Prid. Kal. April.	Mar. 31
xvii	Constantine	iii Kal. Mart.	Feb. 27
xviii	Constantius	vii Id. Aug.	Aug. 7

e P. 112.

a See Vol. iii. 337.

b Cf. Suetonius, Vita, ii. § 1: xxiv. § 3. Dio, lxvi. 17.

c Suetonius, Vita, ii. § 1: xi. 1. Dio, lxvi. 18. 26: lxvii. 2.

d Cf. Dio, lxviii. 4.

e Dio, lxviii. 6. 33. Pliny, Epp. x. 28: Panegyricus, 92.

f Histor. Aug. 1: 25, 26. Dio, lxix. 7: 23.

g Historia Aug. 1: 10; 12: Diadumenus, 5. Dio, lxxvii. 4. Fabretti, x. 443: p. 724–726. Morcelli, i. 321: cccxxviii.

h Historia Aug. 1: 18. Dio, lxxi. 33, 34.

i Historia Aug. 1.

k Ibid. 15. Dio, lxxiii. 10.

l Historia Aug. 1. vi. Id. Dio, lxxvi. 17: 15.

of Constantine: both the ix Kalendas Augustas, July 24, the date of his accession, A. D. 306, and iii Kalendas Mart. Feb. 27, which is known to have been his real birthday[f]. In each of these instances the entry is N. D. Constantini; that is, Natalis Divi Constantini: and Divus is a title which could not have been applied to him until after his death. His father's birthday, (Prid. Kal. Apriles,) is similarly noted, N. Divi Constant. (Natalis Divi Constantii.) And the title is applied in many other cases; but only to deceased emperors: as Divi Augusti (ix Kal. Oct.): Divi Titi (iii Kal. Jan.): Divi Veri (xviii Kal. Jan.): Divi Severi (iii Id. Apriles): Divi Pertinacis (Kal. Aug.)

This calendar then must have been of later date than the death of Constantine May 22 A. D. 337. It could not have been earlier than the reign at least of Constantius; the limits of which were May 22 A. D. 337 and Nov. 1 A. D. 361. And here again it is to be observed that opposite to the vii Id. Augustas we find the entry of N. Constantini; and as that is known to have been the birthday of Constantius[g], it may be assumed that Constantini is here accidentally a mistake for Constantii. Again, opposite to the vi Id. Novembres we meet with the entry of N. Nervæ et Constantii; and that is known to have been the birthday of Nerva and the Natalis Imperii of Constantius[h]: though Ammianus Marcellinus dates this latter vi Id. Octobres[i], a month earlier. And since in both these cases, (one of them that of the natural the other that of the political birthday of the emperor Constantius,) the name is simply Constantii without the Divi, this is in our opinion a strong argument that each was consigned to this calendar in his lifetime; and therefore that the calendar itself must have been compiled in *his* reign, not in Constantine's.

And with respect to the probable period of his reign; there is a very significant omission in this calendar, which ought to be pointed out. It mentions no emperor later than Constantius, though it notices so many before him. Had it then been later than the accession of Julian, *his* name too we may reasonably presume would have been found in it;

[f] See our Dissertations on the Principles, &c. iv. 678, 679.

[g] Eckhel, Doctr. Numm. Vtt. viii. 113.

[h] Eckhel. &c.

[i] xiv. 5.

and perhaps more probably than that of any of his predecessors: for whosoever was the author of this calendar, or whatsoever the authority which made it public, its internal evidence proves that it could not have been the work of a Christian, nor have been put forth by any Christian authority. There are too many vestiges about it of the old religion and of the old superstition for that to be supposed. The prejudices and partialities of the Roman senate were still pagan in the time of Constantine; and even much later, in that of Theodosius the Great: and had this monument been made public by its authority and under its sanction in the reign of Julian, (an emperor who had renounced the religion of Constantine to return to that of Augustus,) his name would doubtless have been mentioned on it with distinguished honour and respect. The absence indeed of any allusion to Julian either as Emperor or as Cæsar in our opinion would be a decisive argument that the date of this calendar could not have been later than A. D. 355. Had it been a single year later Julian must have been recognized in it as Cæsar at least, and as the declared successor of Constantius. He was adopted by Constantius in the former capacity on the 6th of November this very year; and sent immediately into Gaul, with the name and authority of Cæsar, to take the command of the northern frontier of the empire against the barbarians in that quarter. But if this calendar was really published on the first of January A. D. 355; then the omission of his name and of that of Gallus his brother, though critical and significant in the extreme, will be no more than consistent and natural: for Gallus had been put to death A.D. 354; and from the same time forward, down to the date of his adoption itself, Julian also was in disgrace, and even in imminent danger of his life.

There is no occasion however why we should have recourse to arguments of probability merely for the decision of this question. It is sufficient to have adverted to them; and to have shewn that even the effect of such arguments would be to circumscribe the date of this calendar between A. D. 337 and A.D. 355 in the reign of Constantius; and even between A. D. 354 and 355 itself. The precise year of its publication between these extremes of A. D. 337 and 355 will be pointed

out at once by the three tests or criterions which must meet on the first of January in the actual year of its publication; the Hebdomadal incidence, the Nundinal incidence, and the Lunar incidence. It is impossible that this could be the case with more than one year between these extremes; and with whatsoever year it was the case, that must have been the year of the publication of this calendar.

Now there *is* one year between these extremes which unites all these characters; and that is the last year of the period itself, U.C. 1108 A.D. 355. For i. The Dom. Letter of A. D. 355 was A. Consequently January 1 was the Feria Prima, or Sunday. ii. The Nundinal Character of the year was unity. Therefore the Kalends of January were Nundinal. iii. According to our General Lunar Calendar, Period xv. vi. 7, the new moon of Tebeth fell on Dec. 30 A. D. 354; and that being a mensis cavus, it might equally truly be assumed December 31: and that would be confirmed by the solar eclipse, May 28 at 5 A.M. for the meridian of Paris, A. D. 355. The true new moon then at the end of A. D. 354 must have fallen so near to Jan. 1 A. D. 355 that, cyclically reckoned, it might with the greatest propriety have been assumed even for that day itself.

But the truth is that this year, A. D. 355, stood just at the distance of 57 years, or three Metonic cycles complete, from A. D. 298, the epoch of the Roman Supputatio or rule of Easter, to which we adverted briefly supra[k]; and of which we hope some time or other to give a more particular account: and the Kalends of January or Jan. 1 A. D. 298 having been assumed as the date of the Luna Prima at that time, they must be considered as still the date of the Luna Prima, 57 years after, A. D. 355. And as they were attached to the Feria Septima of the Hebdomadal cycle, A. D. 298; they would again fall on the Feria Septima, 56 years after, A. D. 354: and therefore the next year, A. D. 355, they would fall on the Feria Prima. So that in this year, A. D. 355, the 58th year of the current period of the Roman Supputatio, (which proceeded in periods of 84 years at a time,) the Feria Prima and the Luna Prima would both meet on the Kalends of January; i. e. the first of January Roman and the first of

[k] Page 358.

January Julian. And this coincidence would be sufficient to authenticate the year; and to satisfy the most sceptical that it could not have been any other than A. D. 355. And that being the case, we learn from the testimony of the calendar itself that there was a third coincidence, over and above the other two, which distinguished this year; viz. that the Kalends of January this year were Nundinal also: so that not only the first day of the Hebdomadal cycle but the first of the Nundinal also *de facto* met on the Kalends of January this year.

vi. *On the inferences deducible from the above conclusions.*

The discovery at which we have thus arrived by means of contemporary evidence of the fact, (and that too of the most authentic kind,) that January 1 Roman and January 1 Julian A. D. 355 were both Nundinal, is entirely in unison with the scheme of the course and succession of the Nundinal cycle in the Julian Correction at Rome, represented in our own Roman calendar from B. C. 45 to A. D. 355; according to which too the Nundinal character of U. C. 1108 A. D. 355 was unity: that is the Kalends of January were Nundinal. It is in unison also with our scheme of the same course and succession brought down in the ancient Nundinal calendar itself, from July 19 B. C. 1340 to A. D. 355. In the first Type of that calendar the cccxl cycle of five equable years and six Nundinal years, from the epoch perpetually, bore date June 23 A. D. 354[1]; and A. D. 355 fell in the first year of that cycle. June 23 A. D. 354 being Nundinal, July 25 was Nundinal; August 26 was Nundinal; Sept. 27 was Nundinal; October 29 was Nundinal; Nov. 30 was Nundinal; Dec. 24 was Nundinal. And that was the last Nundinal day A. D. 354. Consequently the first A. D. 355 was January 1 itself. And thus we connect the Nundinal cycle of the epoch, July 19 B. C. 1340, with the same cycle *de facto* 1694 years later, January 1 A. D. 355.

In the regular administration of two such things as the Nundinal cycle and the cycle of leap-year in the Julian calendar in conjunction; a single well attested instance of the coincidence between a given Julian date and a given feria

[1] See Vol. ii. 698.

of the Nundinal cycle is competent to verify and vouch for the same cycle in the same kind of calendar either backwards or forwards perpetually. The number of years which would bring back a given Julian term to a given Nundinal feria, and in the same year of the Julian cycle of leap-year, as we have already observed[m], is 8×4 or 32. And as there can be no question that the Julian calendar was regularly administered at Rome from the Kalends of January U. C. 978 A. D. 225 to the Kalends of January U. C. 1108 A. D. 355; the Nundinal Character of January U. C. 1108 A. D. 355 being known from actual contemporary testimony, nothing could more easily or more certainly be done than from that one Nundinal date alone to determine the Nundinal Character of January in every year from U. C. 1108 to U. C. 978. Thus, if the Nundinal Character of U. C. 1108 A. D. 355 was unity, that of U. C. 1107 A. D. 354 must have $1 + 5$ or 6; and that of U. C. 1106 A. D. 353 must have been $6 + 5$ or 3. And without being at the trouble of going back year by year from U. C. 1106 A. D. 353 to U. C. 978 A. D. 225; let us go back four cycles of 32 years or 128 years at once, from U. C. 1106 A. D. 353 to U. C. 978 A. D. 225: and if the Nundinal Character of U. C. 1106 A. D. 353 was 3, that of U. C. 978 A. D. 225 must have been 3 also. And such, it appears from our calendar for that year, it was.

It is true that if we go back beyond U. C. 978 A. D. 225, we get into a period of the administration of the actual Julian Correction during which, as we have seen, it could no longer be assumed that the Kalends of January in a given year of the city, and the first of January in the corresponding year of the Vulgar Æra, were always the same; yet still even under such circumstances the Nundinal cycle must be capable of being traced backwards according to one and the same law: the Nundinal Character of every Roman year so traced backwards perpetually must be connected in a similar manner with that of the year before it; until at last, by a series of steps of this kind not one of which could be dispensed with, (links in the chain, not one of which could be broken without making the whole fall to pieces,) we should arrive at the Nundinal Character of the very first Julian

[m] Vol. ii. 14.

year, U. C. 709 B. C. 46–45, from this of the 400th, U. C. 1108 A. D. 355, supplied and made known by testimony.

And though, as we have often observed also, the Nundinal cycle itself might appear to have gone on just the same whether there had been eight days more or eight days less in the administration of the calendar from U. C. 709 B. C. 46 to U. C. 1108 A. D. 355; yet in conjunction with the Kalends of January it could not have done so. It would not have been possible for the Kalends of January to have coincided with December 30 B. C. 46, and with January 1 A. D. 225, if 8 days more or 8 days less than our own calendar exhibits from one of those extremes to the other had been introduced into the actual administration of the Julian Correction at Rome between U. C. 709 and U. C. 978. In short if the first day in the Roman year, which corresponded to the first year of the Julian Correction, must be Nundinal *de facto*, and the third day of the Roman year, which corresponded to the 270th year of the Julian Correction, must also be Nundinal *de facto*, and yet the Nundinal Character of this latter year must be necessarily and consequentially dependent on that of the former; there is but one mode of bringing about this effect at last by the perpetual combination of these two cycles, the cycle of Kalends and the Nundinal cycle: viz. that which is exhibited in our own calendar; confirmed too and authenticated by actual testimony at so many intermediate points of time. On this subject therefore enough has been said; and we may now safely and securely take our leave of it for good.

vii. *On the subsequent history of the Nundinal Cycle.*

As the Nundinal cycle is thus seen to have been still in use, at Rome itself, as late as A. D. 355, we may presume that it must have continued to be in use there some time longer. And in fact it is very difficult to say within what distance of time from A. D. 355 it may be supposed to have entirely ceased. Macrobius appears to have been writing in the reign of Theodosius the Great, thirty or forty years after A. D. 355; and we have already observed that, to judge from his mode of speaking[n] of this cycle, it had not ceased to be

[n] Vol. ii. 428.

in use in his time: though its use then might be most characteristic of the *Pagani,* the inhabitants of the villages or hamlets, in contradistinction to those of the towns or cities; among whom also (as the name of Paganism itself implies) the ancient superstitions and ancient observances of the Romans lingered longest, and still maintained their ground after they had been banished from the cities.

And no doubt so long as any traces of the old religion continued to exist in and about Rome, a cycle like the Nundinal, consecrated to its service by immemorial usage and prescription, and confirmed and rooted by a thousand prejudices in its favour, would continue to exist somewhere or other also. Its final abolition could be the effect of nothing but the universal establishment of Christianity both in public and in private; both in the cities and in the country: but when that establishment first became universal and complete it would be difficult to say.

The barbarian invaders from the north, who overran the western empire, and introduced both a new race of men, and a new order of social existence, were probably familiar with the Hebdomadal cycle even before their conversion to Christianity[o]. At any rate, they could have no prejudice in favour of the Nundinal; and with their conversion to Christianity they would necessarily learn to use the Hebdomadal cycle, even if they had known nothing of it before. The downfall of the Roman empire in the west would entail the extinction of the Nundinal cycle of ancient Italy, even if it had survived in that country until then.

But whatsoever may have been the cause of the effect, the effect itself was doubtless produced at last; viz. that the Nundinal cycle fell into disuse and oblivion every where even in Italy: whereas the Hebdomadal, even in that country, from the time when it first got admission into it along with the profession of Christianity, was never for a moment interrupted. The superior importance of the Hebdomadal cycle even in Italy, and at this very time, A.D. 355, in comparison of the ancient Nundinal cycle, appears from the Constantian calendar itself; in the greater prominency given to the characters intended of the former above those which repre-

[o] Cf. our Fasti Catholici, i. 422. 434.

sented the latter. And this distinction too would be only consistent with the date of that monument, as later in point of fact than the reign of Constantine; by whom the observance of the Hebdomadal cycle all over the empire had been made binding by law, when he commanded the observance of the Feria prima or Sunday. For the recognition of some one feria of the cycle by law implied that of the cycle itself; and that having been enjoined by Constantine the Great, we need not wonder to see the same cycle marked and distinguished above the Nundinal cycle itself, on a monument like this of the Constantian calendar, published so soon after, in the reign of his son and successor.

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